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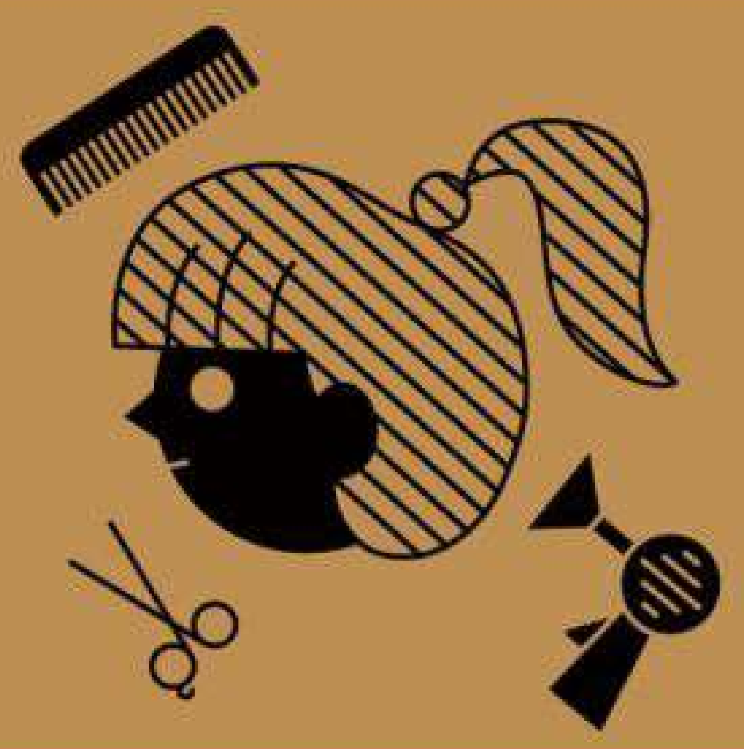
G **Gaming** P.49



H **Hair** P.50

Amazon Unpacked

OUR
A–Z
GUIDE

Everything you need to know about its ever-expanding empire

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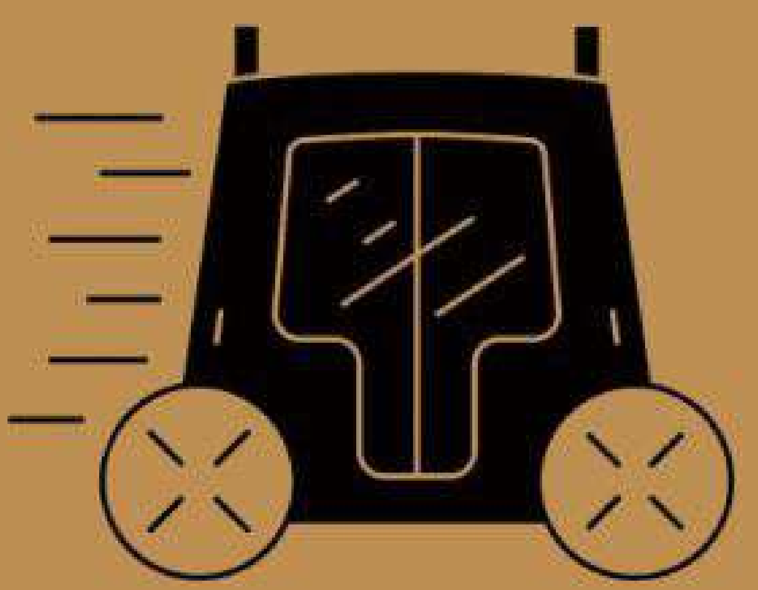

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↓

Brands That Matter

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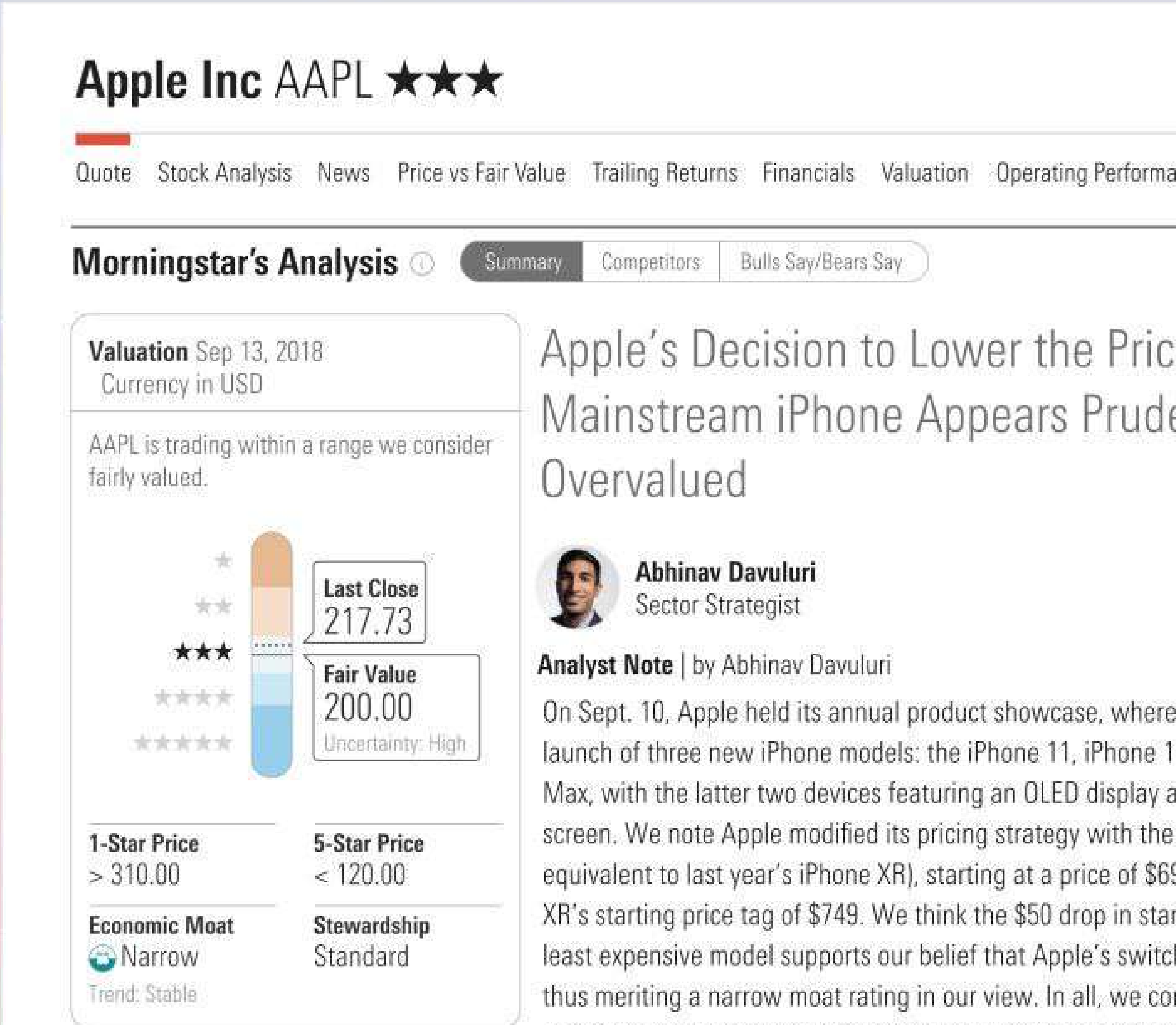

Apple Inc AAPL ★★★

Morningstar's Analysis

Valuation Sep 13, 2018
Currency in USD

AAPL is trading within a range we consider fairly valued.

Last Close
217.73

Fair Value
200.00
Uncertainty: High

1-Star Price
> 310.00

5-Star Price
< 120.00

Economic Moat
Narrow
Trend: Stable

Stewardship
Standard

Apple's Decision to Lower the Pric
Mainstream iPhone Appears Prude
Overvalued

Abhinav Davuluri
Sector Strategist

Analyst Note | by Abhinav Davuluri

On Sept. 10, Apple held its annual product showcase, where
launch of three new iPhone models: the iPhone 11, iPhone 1
Max, with the latter two devices featuring an OLED display a
screen. We note Apple modified its pricing strategy with the
equivalent to last year's iPhone XR), starting at a price of $69
XR's starting price tag of $749. We think the $50 drop in star
least expensive model supports our belief that Apple's switch
thus meriting a narrow moat rating in our view. In all, we co
in the iPhone 11 series to be relatively marginal and we susp

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◂ **VALLEY BLUES**
Tracy Chou's Block Party faces an uphill battle, despite her strong résumé. (page 09)

PHOTOGRAPH BY BRENNAN BUCANNAN

ON THE COVER
ILLUSTRATIONS BY JAMES GRAHAM

NOVEMBER 2021

CORRECTION

In "Detoxing Twitter" (October 2021), we incorrectly reported that Dantley Davis was the first Korean American executive to report to the CEO since Twitter went public. Grace Kim served as VP of design and research from 2016 to 2018.

P. 09

Next

Big Tech has vowed to fix everything from DEI to harassment. Block Party CEO Tracy Chou's story shows why they're failing.

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The Recommender

Tips, tricks, and really cool gear to help you travel on planes, trains, or automobiles.

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Exit Strategy

We thought technology would improve the world. Instead, we got . . . NFTs?

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Amazon Unpacked

How the company is taking over everything, from A to Z.

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A New Arms Race

Inside the uneasy alliance between Silicon Valley and the U.S. military.

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On Impact

Fast Company's Impact Council presents a blueprint for change.

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Brands That Matter

Vans, McD's, Ikea, Patagonia Provisions, Yeti, and more.

DEPOP STAR

CEO Maria Raga makes secondhand shopping social. (page 24)

PHOTOGRAPH BY DAVID VINTINER

Shopping online should be boring

You find something you like, you put it in your cart, you click, you pay. Done. Easy. Except sometimes it's not. Sometimes you order 11 taco holders when you meant to order 1. Sometimes that pantsuit shows too much of your birthday suit. It happens, and fixing it shouldn't be an adventure. It should be simple, frictionless, and kind of...boring.

And that's why we're here. We're Zendesk, but you can also call us Champions of no-hassle returns.

CHAMPIONS OF CUSTOMER SERVICE

zendesk

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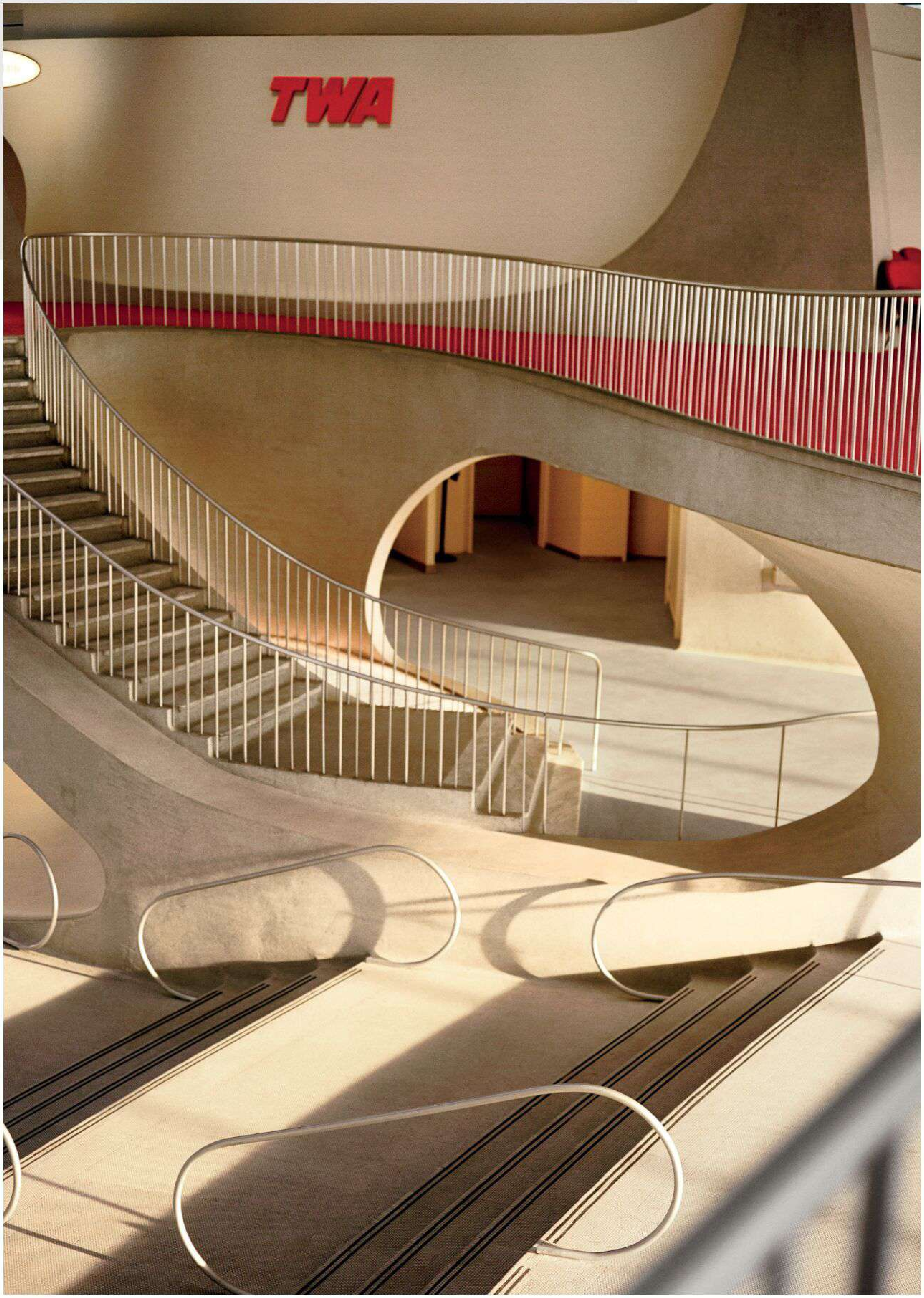
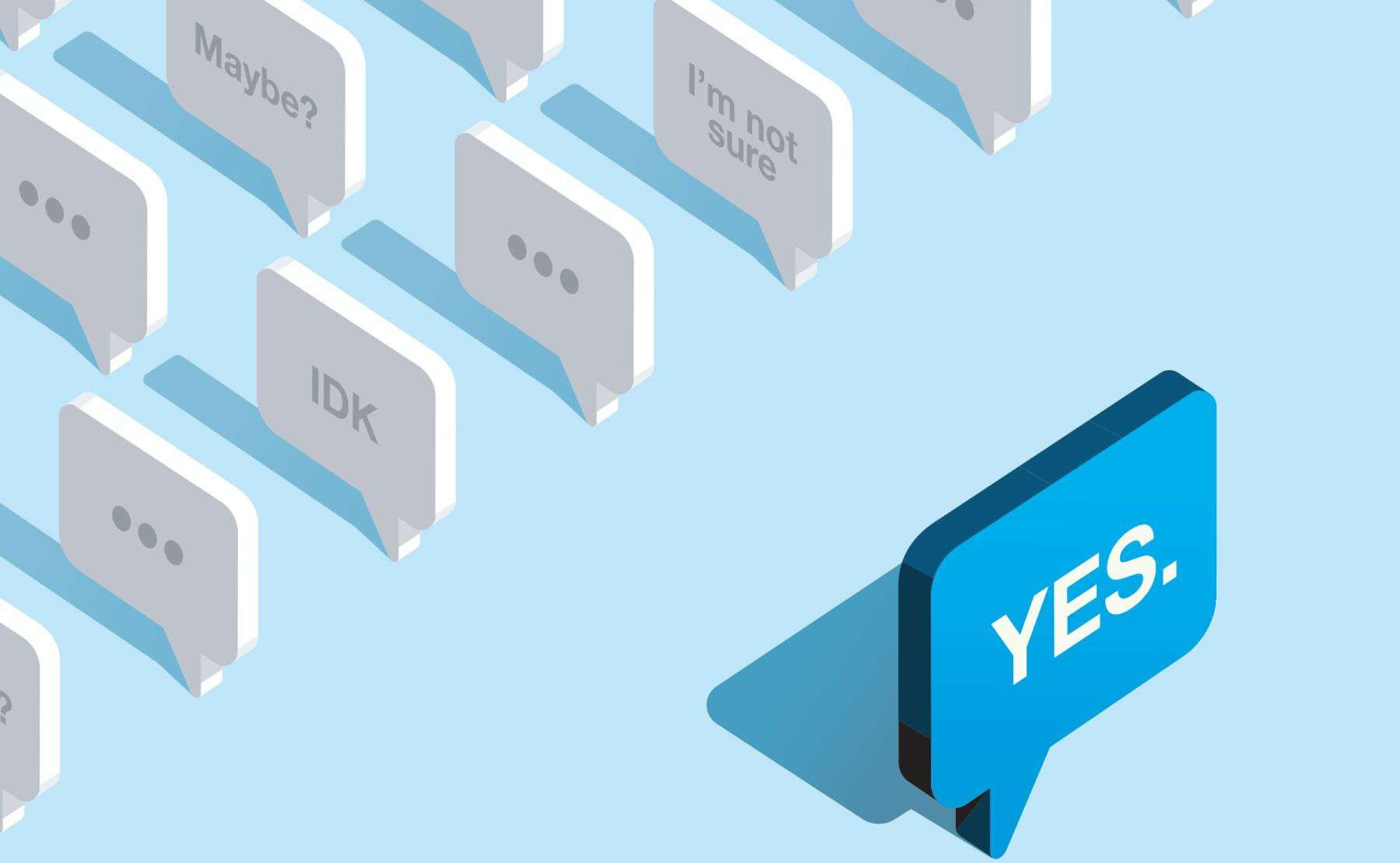


SPARKS FLY The Eero Saarinen-designed TWA hotel. (page 31)

PHOTOGRAPH BY JOYCE LEE

NOVEMBER 2021

CORRECTION
In "Everybody's Talking About Jamie" (October 2021), we incorrectly reported that Michelle Obama had appeared on Jamie Lee Curtis's podcast, *Good Friend*. She has not.



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from the editor.

STEPHANIE
MEHTA

The Amazon Effect

It is hard to overstate Amazon's influence on global business right now. When the company raises its U.S. average starting pay, as it did in September, it puts wage pressure on nearly every American business with hourly workers—from fast-food chains to manufacturers. Consumer packaged goods companies increasingly rely on "the everything store" for distribution, even as they also compete with Amazon's cheaper house brands, such as Goodthreads and Wag. But wait! Amazon's ubiquitous computing infrastructure arm can provide these frenemies—and just about any business—with analytics, forecasting, and other data tools.

Amazon's impact on corporate operations and culture is so sprawling that our editors felt it warranted an encyclopedic approach. Our A-to-Z guide seeks to capture this powerful company's current scope, as well as its ambitions, from the bold (stitching together an end-to-end transportation network) to the whimsical (hair salons) to the unnerving (a project to form private mesh networks that piggyback onto customers' Ring cameras and Echo devices).

I asked Brian Dumaine, author of *Bezonomics: How Amazon Is Changing Our Lives and What the World's Best Companies Are Learning From It*, for a historical analogy. He thought Amazon in many ways resembled Ford Motor Co. in its heyday, when it manufactured its own steel and windshield glass, and even had its own power plants. It extended credit to buy cars, supported an ecosystem of suppliers, and spawned thousands of small businesses through its dealerships.

Now imagine if Ford also leased out its assembly lines—and that became its most profitable business. And say its dealers could also sell bikes and mattresses and massage guns, which Ford could store and deliver. And it made movies. That would get you closer to the Amazon of today.

All this influence has attracted the attention of regulators, most notably FTC chair Lina Khan, who has suggested that Amazon's "structure and conduct" pose anticompetitive concerns. Sustainability experts fret about the company's impact on the planet. And though Amazon has raised wages and offers robust retraining programs and free college tuition, former employees and unions say working conditions for drivers and warehouse staff are particularly punishing.

For all its tentacles, Amazon's enduring contribution to business will be its role in accelerating the digitization of everything, Dumaine says. From retail to healthcare to transportation, Amazon is applying its tech prowess to dozens of projects, and other players in the industry need to follow suit. "That's going to be Jeff Bezos's legacy," says Dumaine, referring to Amazon's founder. "He's digitizing the economy at a larger scale and faster than anyone could ever have imagined."

Kagan McLeod

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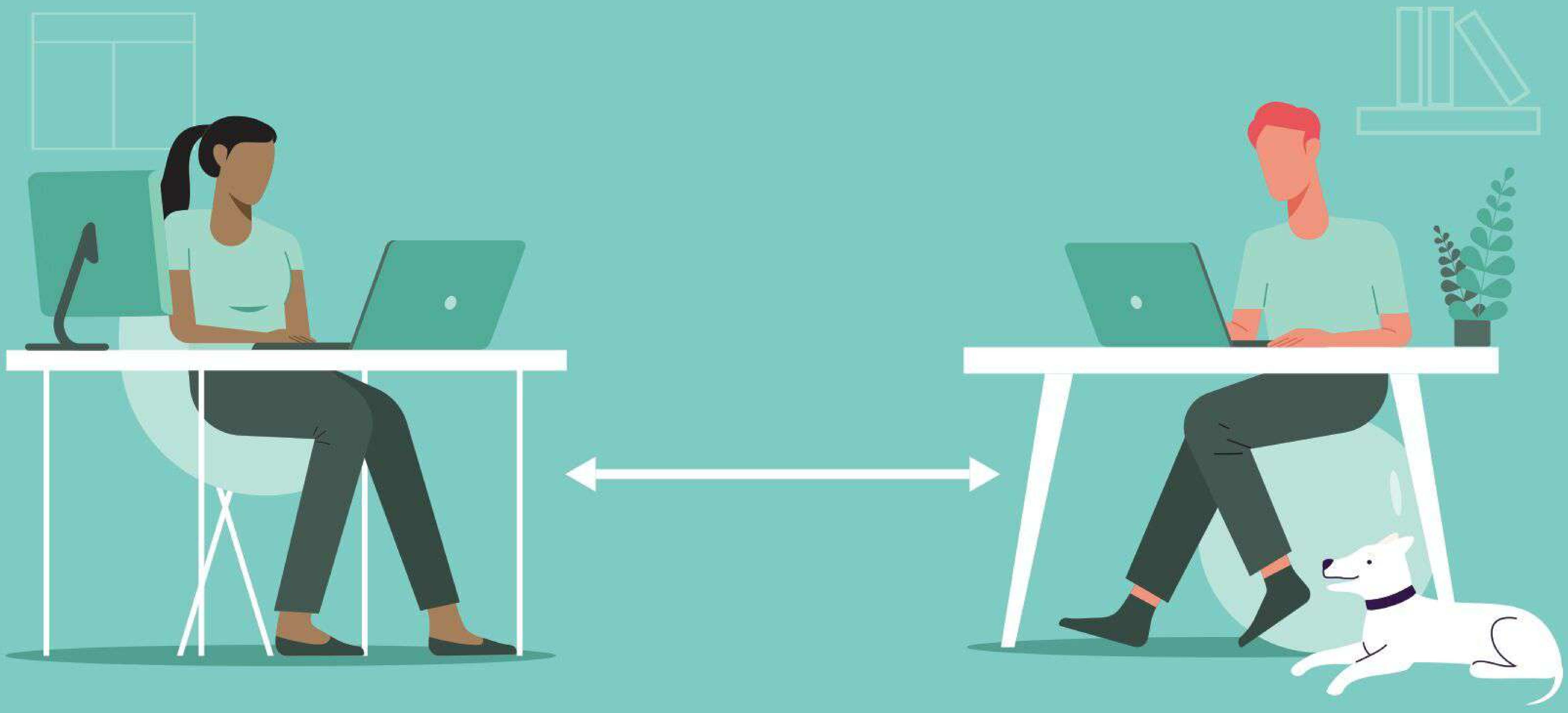

FAST COMPANY

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MCKINSEY, CUSHMAN & WAKEFIELD, MICROSOFT AND MORE

IN PARTNERSHIP
WITH RECORDED BOOKS

AVAILABLE WHEREVER
AUDIOBOOKS ARE SOLD

Photograph by
Brennan Bucannan

Big Tech Won't Save Us

Societal problems only seem to get worse when Silicon Valley puts its mind to fixing them. But there is a glimmer of hope.

BY PAVITHRA MOHAN

Last year, one of the major browser companies launched a new incubator whose stated mission was to invest in start-ups that aspire to "fix the internet." For Tracy Chou, who had founded a company, Block Party, which makes anti-harassment tools that aim to do exactly that, applying seemed like a natural fit—but for one thing. Earlier in her career, she'd had several uncomfortable encounters with one of the program's architects—the sort of unwanted attention that was practically a rite of passage for Silicon Valley women.

The opportunity seemed too good to pass up, but Chou's skepticism proved to be well founded. When she joined the incubator, last summer, a mentor she found "condescending and aggressive" pushed her to scrap her deliberate, gated approach to bringing in new users. At Block Party, it was paradoxical to compromise on safety and security for the sake of growth. But she felt pressured to take the advice, so she hosted a Reddit "Ask Me Anything" session. It was promptly overrun with trolls, sparking an onslaught of abuse across Twitter and email, and polluting the Block Party waitlist.

An Asian American engineer, Chou has spent the past decade cofounding startups as well as the diversity-focused Project Include, in 2015—calling out the gender inequities and racism embedded in Silicon Valley. Whatever progress she's made has come at personal cost. "In doing this diversity and inclusion activism work," she says, "I built a profile that then exposed me to more harassment."

With Stanford degrees, internships at Facebook and Google, and then early stints at Pinterest and Quora, Chou seems the platonic ideal of a Silicon Valley founder. Venture capitalists reward entrepreneurs obsessed with solving their own problems, so you'd imagine that Block Party—which grew out of Chou's own traumatic experiences with online abuse and Big Tech's passing interest in the issue—might be an appealing investment. Yet potential backers doubted whether there was *really* a market for Block Party, and Chou raised only $1.5 million, in part from investors like Ellen Pao, who faced harassment after suing the VC firm Kleiner Perkins for gender discrimination and shuttering some of Reddit's most noxious forums when she was its CEO. Meanwhile, a competing startup, Sentropy, helmed by two white men with limited experience with the problem, raised $13 million. (It was acquired this summer by Discord, which then shut down Sentropy's products.)

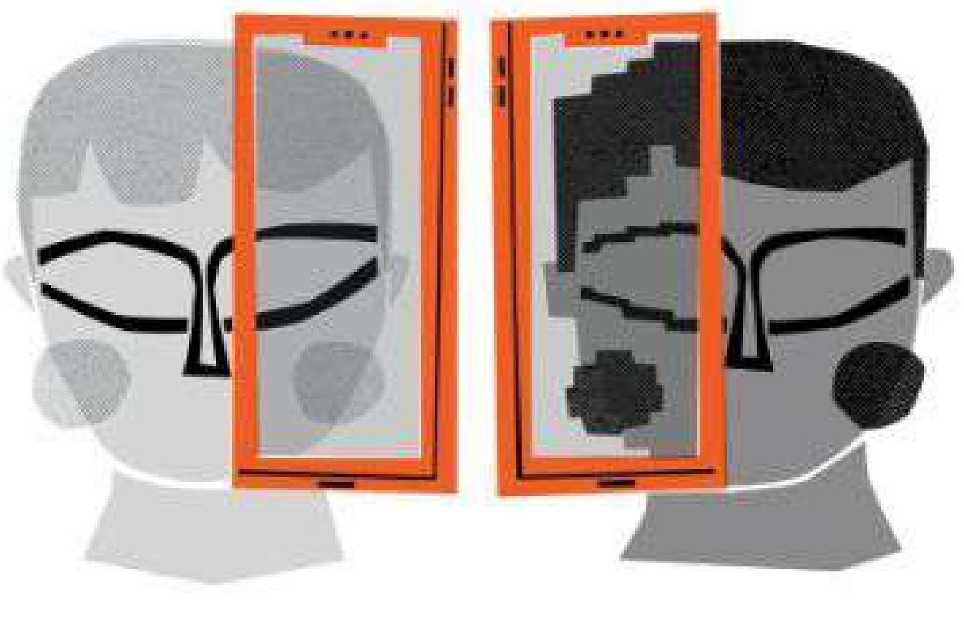
Chou's story, alas, is not an outlier. Silicon Valley's leaders have spent a decade touting their ability to solve problems they helped create or exacerbated—while marginalizing the people most affected by the issue. "When you're a white man in tech and you have contrarian views or you're critiquing the system, you get rewarded for it," Pao says. "I think the opposite has happened for Tracy."

Less than a decade ago—at the height of society's optimism for Silicon Valley as a force for good—even the biggest players in the data-obsessed tech industry refused to divulge the makeup of their workforce. Chou's 2013 Medium post urging companies to share data on the number of women in technical roles helped to unwind the fallacy that employee demographics should be trade secrets.

As big tech companies released their first diversity reports, starting with Google in 2014, each was bleaker than the last, with women accounting for less than a quarter of leadership and technical roles at most companies; Black and Latinx representation in those departments hovered around 3%. The industry then proclaimed that diversity, equity, and inclusion were important, spawning a cottage industry of DEI consultants and experts, training sessions, and hiring initiatives, and throwing billions at the problem. Some companies have made a concerted effort to install Black

MODERN PROBLEMS

A status update on the tech industry's progress ameliorating the issues it's exacerbated



ALGORITHMIC BIAS

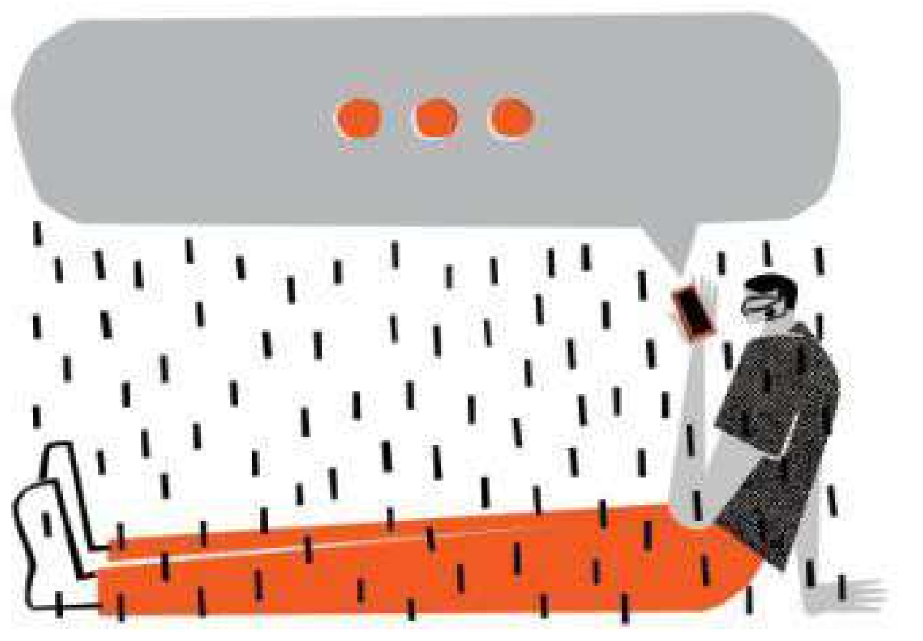
How it started
A 2018 paper by MIT researcher Joy Buolamwini exposed skin-tone bias in facial-recognition tech, and in the wake of George Floyd's murder, in 2020, Big Tech either halted (IBM) or paused (Amazon) selling these AI services.

How it's going
In May, Lemonade, the AI-powered insurance firm, boasted it could identify fraud by analyzing customers on video, sparking backlash about profiling. Police forces still assess citizens using predictive-policing AI.

GENDER DIVERSITY

How it started
Big tech companies like Apple refused to release their workplace demographics until pressured (by Tracy Chou and others) to do so, starting in 2014.

How it's going
Slow! Apple, for example, has grown its "global female representation" from 30% to 34% between 2014 and 2020. In technical roles, women made up 23% of the team in 2020, up from 18% in 2014.



ONLINE HARASSMENT

How it started
In 1985, the online community the Well launched. It required real names and prohibited content deletion—prioritizing free speech. The Well ultimately imploded into flame wars, presaging social networks' content-moderation woes.

How it's going
According to Twitter's second-half 2020 transparency report, the most common user complaints are for hateful conduct and abuse/harassment. Twitter took action against approximately 20% of reported accounts.

board members and DEI leaders; others, such as Intel and Uber, have tied executive compensation to diversity metrics.

And yet, in an industry that typically demands returns from billion-dollar investments, there has been minimal progress on the composition of the workforce. Apple, Facebook, and Google have made incremental progress hiring women, but the share of female technical workers has hardly budged. Much of the increase in Black and Latinx employees is in nontechnical roles.

One reason for this might be that some tech companies see DEI leaders as mere figureheads. “They’re often extremely talented and skilled, and I know for a fact that they’re making radical and useful recommendations and designing programs that could shift things within the company,” says Mimi Fox Melton, CEO of nonprofit Code2040. “But when leadership at the company sees racial equity work as something they simply have to do for marketing, and not something that is integral to their business model, it is always going to be [devoid of] actual power, funding, or teeth.”

When underrepresented employees enter these workplaces, they’re often set up to fail—and potentially face retaliation, particularly if they’re outspoken. Case in point: Timnit Gebru, the renowned Black researcher and former co-lead of Google’s AI ethics team who says she was pushed out last year over a research paper critical of the AI models underpinning Google’s search engine. Rather than reimagine their cultures and power dynamics, companies paper over criticisms of their role in perpetuating algorithmic bias, which, like online harassment, impacts marginalized communities disproportionately.

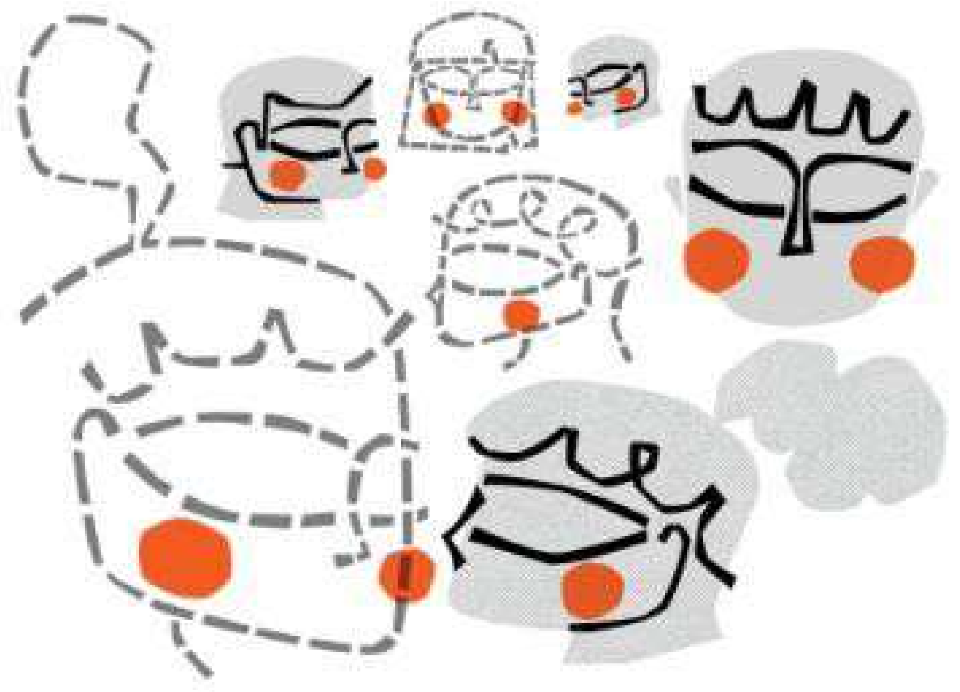
The venture capital world has fared no better, on either side of the table. The industry has long had an abysmal record both hiring and funding women and people from underrepresented backgrounds. Though Black women are attracting more funding than in years prior, they received only 0.34% of total VC dollars in the first half of 2021, according to a Crunchbase analysis.

“While there was a bit of a reckoning around the murder of George Floyd, it for the most part has not resulted in sustained activity,” says Freada Kapor Klein, cofounder of Kapor Capital, a VC firm that has long prioritized founders of color and social-impact startups. She characterizes the efforts of prominent investors such as Softbank and Andreessen Horowitz to create dedicated funds for underrepresented founders as “insulting,” especially when considering their size compared to their main funds. But that’s more expedient than “any widespread soul-searching about the role of venture capital in furthering systemic racism, wealth inequality, income inequality, or the increased segregation of cities and neighborhoods.”

If Chou embodies how the tech industry fails so many women, she also represents a cohort of tech workers trying to find real solutions to problems not of their making. According to the Pew Research Center, more than 40% of Americans have experienced some kind of online harassment. But social media companies have been slow to take any action, and even those that have finally responded to pressure—like Twitter—have just scratched the surface, often continuing to put the onus on users to report issues.

There are a number of things tech could do differently, if it was so inclined. The industry could fund more solutions created by people personally invested in the product, or empower people like Gebru to do deep work on the problems Big Tech has helped create. More tech companies could tie executive compensation to diversity metrics. Investors could follow the lead of firms such as Kapor Capital and stop requiring a warm introduction to get a meeting; they could also hold companies accountable for bad behavior without public pressure. Businesses could spend more time digging into attrition data than they do issuing platitudes.

But it’s workers who may be the real catalysts for change in the tech industry, as they continue organizing walkouts, breaking NDAs, and demanding more from their employers. “Workers on the whole are tolerating a lot less,” says Y-Vonne Hutchinson, founder of ReadySet, a diversity consulting firm. “They’re leveraging their power and saying, ‘Actually, I don’t want to work like this anymore,’ and companies are now scrambling to find employees. That makes me optimistic.”



RACIAL EQUITY

How it started
A 2014 Equal Employment Opportunity Commission report revealed that Black and Hispanic workers made up 1.9% and 4.4%, respectively, of tech and non-tech employees at the 75 largest Silicon Valley companies.

How it’s going
In June, Google confirmed it would end its Engineering Residency program that gave underrepresented software developers a path to a full-time job, because the effort resulted in graduates being systematically underpaid.

DEVICE/APP ADDICTION

How it started
In 2013, Tristan Harris, then a Google design ethicist, made a presentation called “A Call to Minimize Distraction & Respect Users’ Attention.” It initiated the Time Well Spent movement, advocating for reducing tech’s ability to hijack users’ brains.

How it’s going
In 2021, brokerage app Robinhood went public on the strength of its gamification of complex options and crypto trading. TikTok is the most downloaded social media app because of its highly addictive algorithm.

Illustrations by Romualdo Faura

Fake Everything

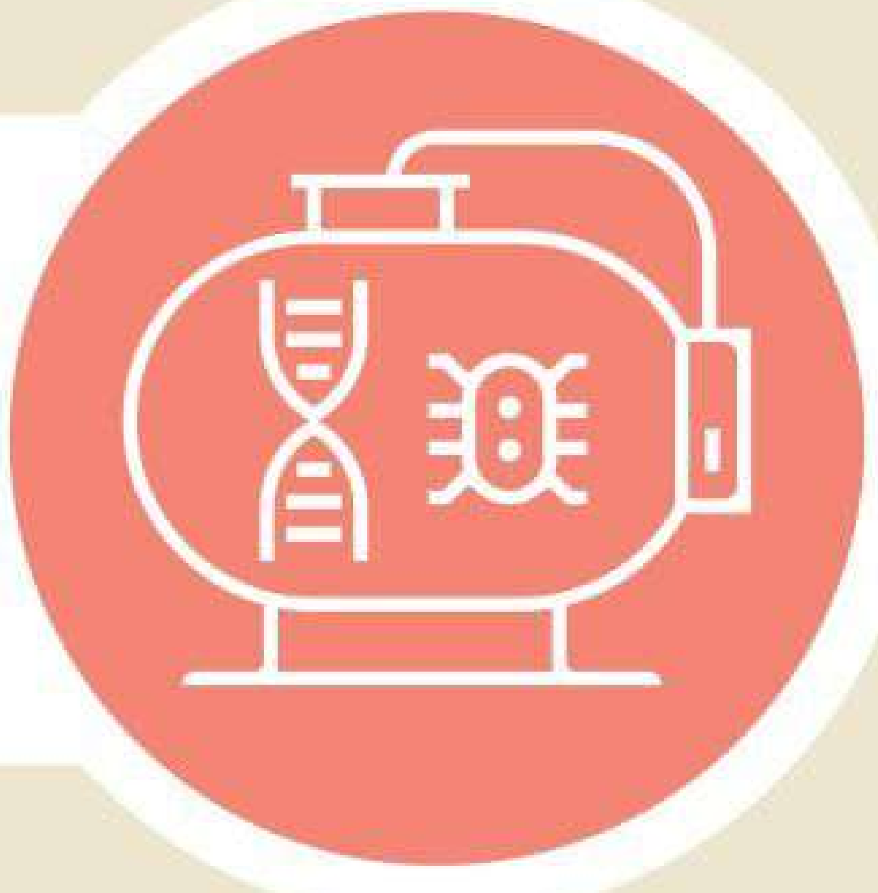
More and more of what we eat (and wear) is coming from bioreactors rather than traditional farms.

BY ADELE PETERS

What would have, until recently, seemed like sci-fi is now reality: Chicken grown from cells in a bioreactor is already on a restaurant menu in Singapore. A new facility in Israel will be able to churn out enough cell-based meat to make 5,000 animal-free beef burgers a day. More than 700 companies are now working on next-generation alternatives for traditional animal products, with the aim to improve animal welfare and help shrink the carbon footprint of the food chain. Investors poured a record $3.1 billion into the alternative protein industry in 2020. Though there are challenges—a 3D-printed steak still doesn't look quite like a steak—it's increasingly possible to engineer versions of food that seem indistinguishable from traditional farm-raised fare. Technology makes it possible to program microbes to become "cell factories" for key ingredients like casein, a protein that helps make dairy products taste like dairy, or heme, a protein that Impossible Foods uses to give its plant-based burgers the metallic tang of blood. Similar technologies are enabling the manufacture of a wide variety of products, from leatherlike materials for clothing and accessories to plant-based hair extensions. Here's a sampling of some of the goods that have emerged from new biotechniques designed to create alternative foods and materials.

FERMENTED

In fermentation tanks, microbes encoded with new DNA can make dairy proteins and other ingredients that are identical to the natural versions.



CELL-BASED

Food scientists can now harvest cells from an animal, use a liquid to kick-start growth, and then produce meat or milk in a bioreactor.

PLANT-BASED

Heavy R&D investment has enabled pioneers like Impossible Foods to launch a new era of plant-based meat and dairy that taste (nearly) real.

BEYOND FOOD

While dozens of companies reinvent meat and dairy products, others are using biotech to make new materials that can reduce environmental impact.

PERFECT DAY
Real dairy proteins made without cows

SOLAR FOODS
Protein made from captured CO2

C16 BIOSCIENCES
Palm oil brewed in a bioreactor saves trees

AQUA CULTURED FOODS*
Shrimp, calamari, and tuna made from fungi

WILD EARTH
Fermented protein for plant-based pet food

MOTIF FOODWORKS
New ingredient "Hemami" mimics meat

BIOMILQ
Bioreactor-grown human milk to replace formula

JUST MEAT
Cultured chicken with regulatory approval

MOGALE MEAT
Cultured antelope and other African meats

GOURMEY
Cell-based foie gras, made in France

FINLESS FOODS
Sushi-grade tuna from cultured cells

HOXTON FARMS
Fat grown from cells for plant-based meats

NOVAMEAT
3D-printed plant-based steaks

IMPOSSIBLE FOODS
Now working on plant-based milk and eggs

MYCORENA
Fungi-based Swedish meatballs

NEW WAVE FOODS
Plant-based kosher shrimp

ECLIPSE
Next-gen plant-based ice cream

JUICY MARBLES
"Steak" with layered proteins that mimic muscle

BOLT THREADS
Leather made from mushrooms

AJA LABS
Plant-based biodegradable hair extensions

MODERN MEADOW
Cell-based leather for shoes and bags

SPIBER
Microbially fermented silk alternative

ECOVATIVE DESIGN
Makeup sponges from mycelium, not foam

PANGAIA X TWELVE
Sunglasses made from CO2-based chemicals

*Unlike many others using fermentation, Aqua Cultured Foods skips genetic engineering.

Photograph by Tracy Nguyen

Know When to Hold 'Em

Universal Pictures' Donna Langley acted fast to save the studio's tentpole films. But, as she explains, the business was changing anyway.

BY YASMIN GAGNE

AS THEATERS AROUND THE U.S. shuttered their doors in March 2020, Donna Langley needed to save her movies. The Universal Filmed Entertainment Group chairman of two years acted swiftly, pushing back the release of the latest installments of the *Fast & Furious* and James Bond franchises. She made other films available on streaming services for a premium; *Trolls World Tour* ended up pulling in $100 million in three weeks that April, more than the original *Trolls* movie earned during five months in theaters. Luckily, Langley, 53, is used to taking risks. The British film executive built a career making expensive bets on seemingly niche movies that found wide audiences—including *Pitch Perfect*, *Straight Outta Compton*, and *Get Out* (see sidebar, next page). Here's how she walks the line between art and commerce in a rapidly changing environment.

DONNA LANGLEY

EARLY JOB
Hostess at L.A. nightclub the Roxbury "to pay my rent while I was interning for free in the daytime."

TITLE
Named Dame Commander of the Most Excellent Order of the British Empire (DBE) by the queen in 2020

When the pandemic began, Universal had 15 movies set for release that year, and no precedent for how to go about releasing them. How did you decide which to hold, and which to make available through video on demand? It was important to be decisive [and] not reactive. There was a lack of information, so some of it was gut instinct. My motto is "Prepare for the worst and hope for the best."

When you think back on the way you released *Trolls World Tour*—on streaming platforms such as Apple TV, Amazon, and Google Play for a premium price of $19.99—how does it look in hindsight? The [entertainment] industry was changing before the pandemic. The pandemic accelerated a lot of trends. We want many people to be able to see our movies, so offering them in the home sooner than before [at a premium] has turned out to be a great thing. Premium video on demand gave us the ability to add an additional revenue stream into our model. Now, windowing—the time between offering a movie digitally and its theatrical release—is top of mind for us.

Still, you've been vocal in your belief that the theatergoing experience will survive. Why do you feel that way? Because it's a pastime that people like. Things are not binary. I love to sit on the couch and watch a great show—I can't wait for the next season of *Succession*—but I also loved seeing *Black Widow* in the cinema. Viewer preferences will affect how we [distribute] content and might affect what we make over time, but theatrical is not going away.

Scarlett Johansson filed a lawsuit against Disney for releasing *Black Widow* on demand while it was in theaters. It seems like actors and directors may want different things than the studio wants, or what audiences might want. There are a lot of variables to it, but as it comes to each individual movie, I am fortunate to have an incredible team of senior leaders. They are able to bring their expertise to bear [upon] any one of these decisions. The first and foremost goal is to support the movie in the best way possible for the creative talent who have been involved in it and making it, and then obviously protecting the business model of it.

Moviemaking is a business, but it's also an art. How do you balance those two aspects, especially when they're often at odds? When you set out to make a movie with a group of people, it's like launching a new product or a new business every time. [That's] because every movie is different depending on the people involved. It's important to sit down [with a director] at the beginning and make sure that we have a shared philosophy. My goal is to discuss [the creative vision] and set the budget range up front. We know what's commercial and what we will need to make something successful in terms of a marketing campaign. Oftentimes, early on, we can tell [when] a director is interested in making a different version of [a movie] than what we think would be best. In that case, you have to be prepared to walk away. You have to be prepared to lose the movie if it's not coming together the way you want it to.

Early in your career, you worked in the story department at [production company] New Line Cinema. How do you spot promising projects? You can't beat good old-fashioned passion. [I love it] when someone says, "I have to make this movie." Good writing also grabs you immediately. I remember the first script I fell in love with, *Boogie Nights*. Recently, it's *She Said* [based on the book by *New York Times* journalists Jodi Kantor and Megan Twohey about their investigation of Harvey Weinstein]. After five pages, I knew I wanted to make the movie.

Before that, you were an assistant. What did you learn from the experience? My first boss [an agent at Writers and Artists agency] was the first female agent ever to sell a spec screenplay for a million dollars. She mostly represented writers. Because it was just the two of us, her clients would want to talk to me if she was unavailable. [That's how] I learned how to speak to artists and relate to them. I got to see their vulnerability. At New Line, I got hands-on experience making films. One of the first I worked on was *Se7en*. It was exciting to see that movie go through the screening process. The ending never tested very well, but it became a cult classic.

What advice do you give your assistants now? We're hardwired to be thinking about the next step. I encourage [that], but [I say to] balance it with thinking, Where am I today? Do I bring value to my manager? To my coworkers? What do I contribute? It gives you perspective and helps you take stock. It also gives you confidence. I don't think other people can value you unless you understand what value you bring.

During your 20 years at Universal, you've overseen hundreds of projects. What have you learned about managing creative people? A fast no is better than a slow one. People are coming to me because they want me to say yes. I prefer to be forthright. Sometimes being honest is telling somebody something that they might not want to hear. My goal is to agree on the vision early and then support the creative talent to do their best work. If I come to a set, it should be purely ceremonial. It should be to have a cup of tea. If it's for any other reason, then we've all failed.

MAKING NICHE CONTENT UNIVERSAL

Langley has a strategy of "super-serving an underserved audience." Here are some successes.

2012

Pitch Perfect
"I give Elizabeth Banks all the credit. The concept wasn't obvious to me. She put together a great pitch for why this movie would be viable. Her passion persuaded me."

2015

Straight Outta Compton
"[The film's star and producer, Ice] Cube knows his audience. The movie is about the American dream, brotherhood, social justice, and [overcoming] adversity."

2017

Get Out
"Jordan Peele came in with a fully formed story. [It was] so singular that only he could direct it. It's thrilling to work with a master storyteller. [He] knew exactly how he was going to make it."

It sounds like you aren't afraid of handing out criticism. Criticism is not a bad thing if it's delivered appropriately and with compassion. There's only one way to do it, and that's to know what you're talking about. You have to do the work. There's no shortcut. If somebody writes a script, then it's your job to read that script enough times to understand it. Anything less than that is disrespectful. Artists [are] generally intuitive. They know if they're being shined on. The best thing you can do is to be constructive and straightforward with them.

What do you do when you start to realize that a movie is going to be a miss? Nobody sets out to make a bad movie. It can happen as a result of many different things because there are so many factors that go into making one. The general feeling has to be one of optimism and problem-solving. You want to do everything you can—editing, changing the marketing strategy—to make something the best that it can possibly be. I never give up on anything. It's a heartbreak when it happens every couple of years.

For at least a decade, there has been increased pressure to make movies that will succeed overseas. At the same time, the proliferation of streaming options has made it so that audiences have become more niche. Do these changes affect how you approach your work? [Streaming] can be a great destination for movies that may not do as well in theaters. I think [that if you make a] great piece of relevant content with a marketing campaign that tells [a particular] underserved community why it matters, it gets people talking, and then more people see it. For that to work, the movie has to be original enough. We've had enormous success [doing that] with movies like *Girls Trip*, *Pitch Perfect*, and *Straight Outta Compton*.

What have you been watching during quarantine? I just finished *Hacks*, which was brilliant. I watch a lot of movies with my kids, who are 10 and 12. I'm probably ruining them because I'm showing them a lot of R-rated comedies, some of which I was involved in. Last night we watched *Bridesmaids*. I forgot about that awkward opening scene . . . they're a bit too young for that.

Courtesy of NBCUniversal (Banks, Cube); Daisy Korpics (Peele)

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Tumult at Twitter
Creative People
SNAP
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Rethinking the power of nutrition

KATE FARMS' INNOVATIVE APPROACH TO NUTRITION OFFERS A NEW OPTION FOR PEOPLE WITH HEALTH CONDITIONS OR ON A WELLNESS JOURNEY

Kate Farms was founded by parents determined to save their daughter's life after a diagnosis of "failure to thrive," a condition when children don't gain weight at the expected rate. Born with cerebral palsy, Kate Laver used a feeding tube for nourishment but couldn't tolerate the existing formulas made of synthetic ingredients heavy on corn syrup and common allergens. At the age of five, she weighed only 15 pounds. Wondering why there was nothing on the market that reflected the fresh produce they found at the farmers' market, Kate's parents Richard and Michelle set out to create a solution for Kate. When the formula they devised helped their daughter gain weight, they started the company in 2012 to bring their products to a wider audience.

"What we eat matters," says Brett Matthews, chairman and CEO of Kate Farms since 2016. "Bad food can make you sick, and good food can actually help you on a journey towards health. We want Kate Farms to bring nutrition to the people who need it the most and at the same time build a great company that does really good things for people."

Kate Farms has grown to become a leader in plant-based nutrition formulas. Its innovative approach has helped land the company a spot on this year's list of *Fast Company*'s Brands That Matter.

SAFE AND EFFECTIVE

The company makes nutrition shakes that are safe and effective for tube feeding as well. They all use USDA organic, non-GMO-certified plant-based ingredients, including pea proteins and phytonutrients, while omitting common allergens often found in conventional formulas. "The published research shows Kate Farms works and is well tolerated," Matthews says, "That's one reason people are switching and choosing it over other options."

The company offers adult- and kid-specific formulas to help people with nutritional needs including food allergies, eating difficulty, malnutrition, gastrointestinal issues, diabetes, aging, and oncology treatments. Kate Farms' clinical and product-development teams work directly with healthcare professionals and food scientists to expand its product portfolio.

FOCUSED ON HEALTHY OUTCOMES

"We are focused on helping people live their best lives through good nutrition," Matthews says. "And that means constantly innovating, collaborating, and finding ways to get Kate Farms into the hands of people who need or want something better for themselves."

Kate Farms sells its products online or through prescription and is available in more than 500 hospitals and healthcare settings. Making its plant-based formulas available to everyone required the company to help create new categories within hospital systems so that insurance covers the cost, while securing Medicaid, Medicare, and private insurance coverage. Kate Farms' care team team provides concierge-style service to help customers, caregivers, and healthcare providers navigate reimbursement and find the right product.

While the company is focused on having a positive impact on customer and employees, its advocacy efforts extend far beyond its Santa Barbara, Calif., headquarters. During the pandemic, the company donated 300,000 meal-replacement shakes, partnering with The Campaign Against Hunger, Meals on Wheels, and Support+Feed, among others, to address food insecurity issues exacerbated by COVID-19.

"Our company brings together people with the heart and expertise to help make a positive social impact," Matthews says. "Good nutrition can help people on a path to improving their lives, and we are set up to do that."

Blue Ribbon
CABBAGE
kate farms

▼
BROOKLYN BOROUGH President—and presumptive NYC mayor—Eric Adams, right, helps to distribute Kate Farms' meal-replacement shakes at an event he cohosted with the Campaign Against Hunger on April 14, 2020.

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Natural Flavor with Other Natural Flavors
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ALL GOOD THINGS
250 mL (8.45 FL OZ)
katefarms
Pediatric Peptide
SOLE-SOURCE NUTRITION FORMULA
1.5 cal/mL
VANILLA
Natural Flavor with Other Natural Flavors
USDA ORGANIC
ALL GOOD THINGS
250 mL (8.45 FL OZ)
katefarms
Nutrition Shake
CHOCOLATE
USDA ORGANIC
ALL GOOD THINGS
11 FL OZ (325 mL)
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SOLE-SOURCE NUTRITION FORMULA
1.4 cal/mL
VANILLA
USDA ORGANIC
ALL GOOD THINGS
325 mL (11 fl oz)
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Parental Pressure

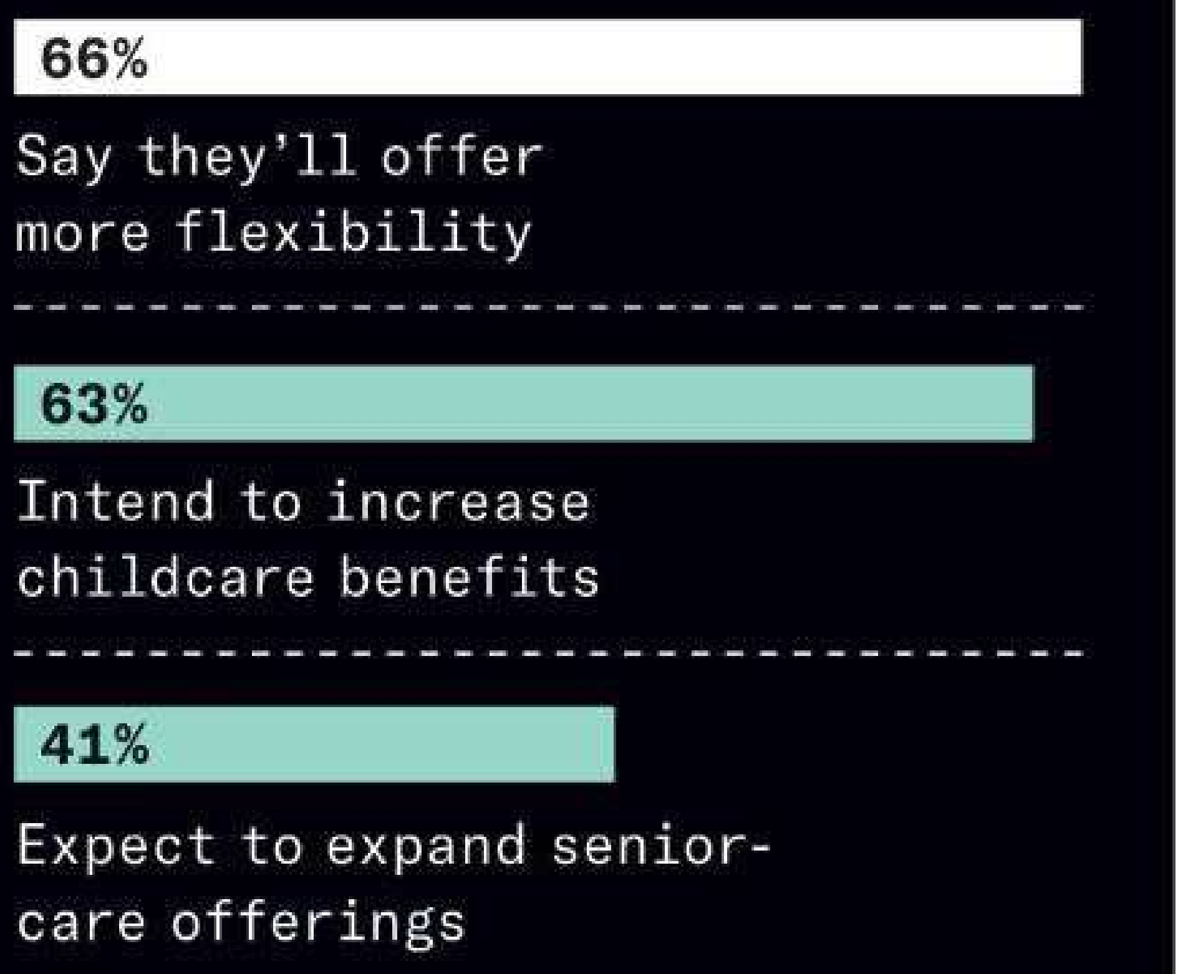
Rising childcare costs during the pandemic have sent parents scrambling, too often right out of the workforce. Some companies are beginning to respond.

BY JULIA HERBST

Childcare wasn't exactly cheap or easy to find before March 2020, but 72% of parents say that it is more expensive in 2021 due to the pandemic, according to an analysis by Care.com. Plus, one-third of childcare centers have yet to reopen. Parents—and moms in particular—have been forced to take a step back or leave the workforce entirely. To try to limit the fallout, some companies are enhancing benefits, offering employees backup care, tutoring reimbursement, or even on-site childcare.

Combating Flight

Survey responses of 500 HR execs in January 2021 on ways they're planning to fight attrition:



Double Duty

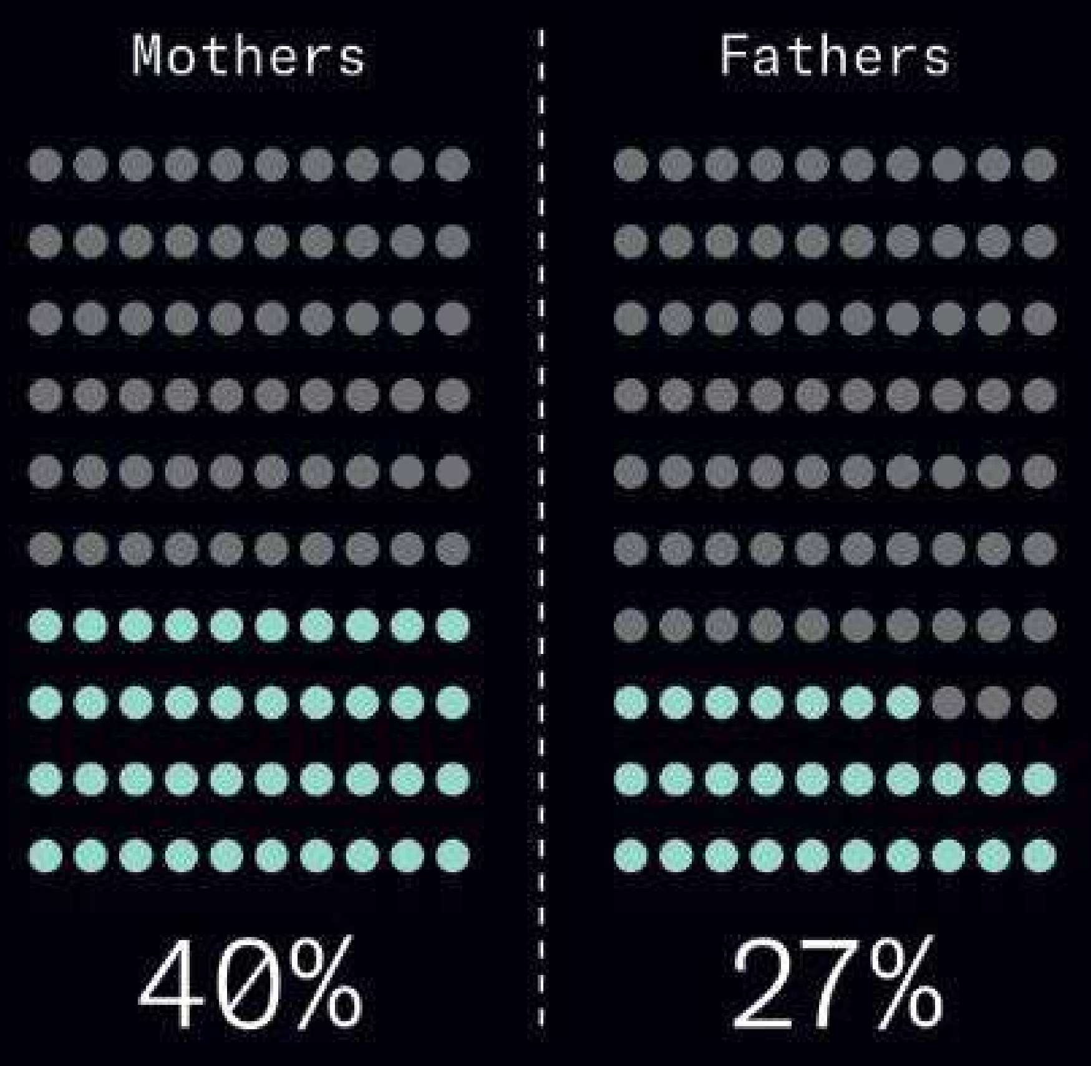
According to a report last year from McKinsey, about 16% of the U.S. workforce is dependent on childcare in order to do their jobs.

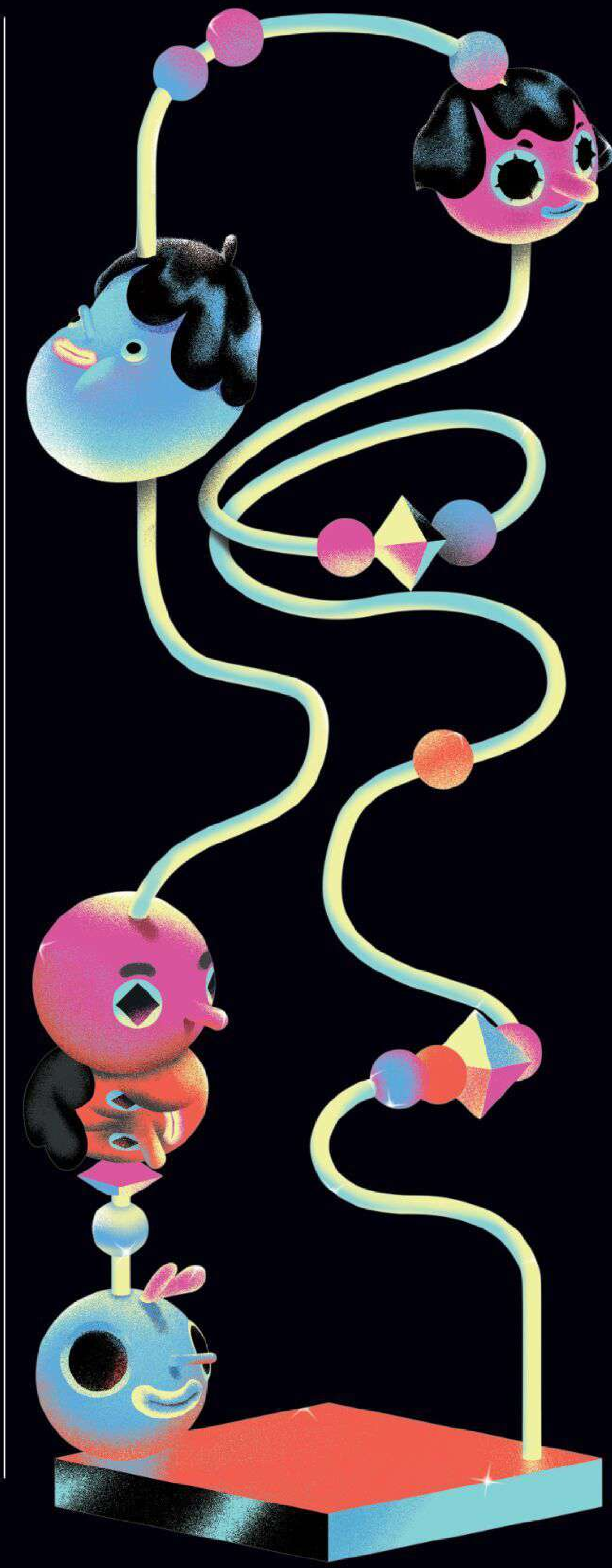
26.8

MILLION PEOPLE

Unpaid Overtime

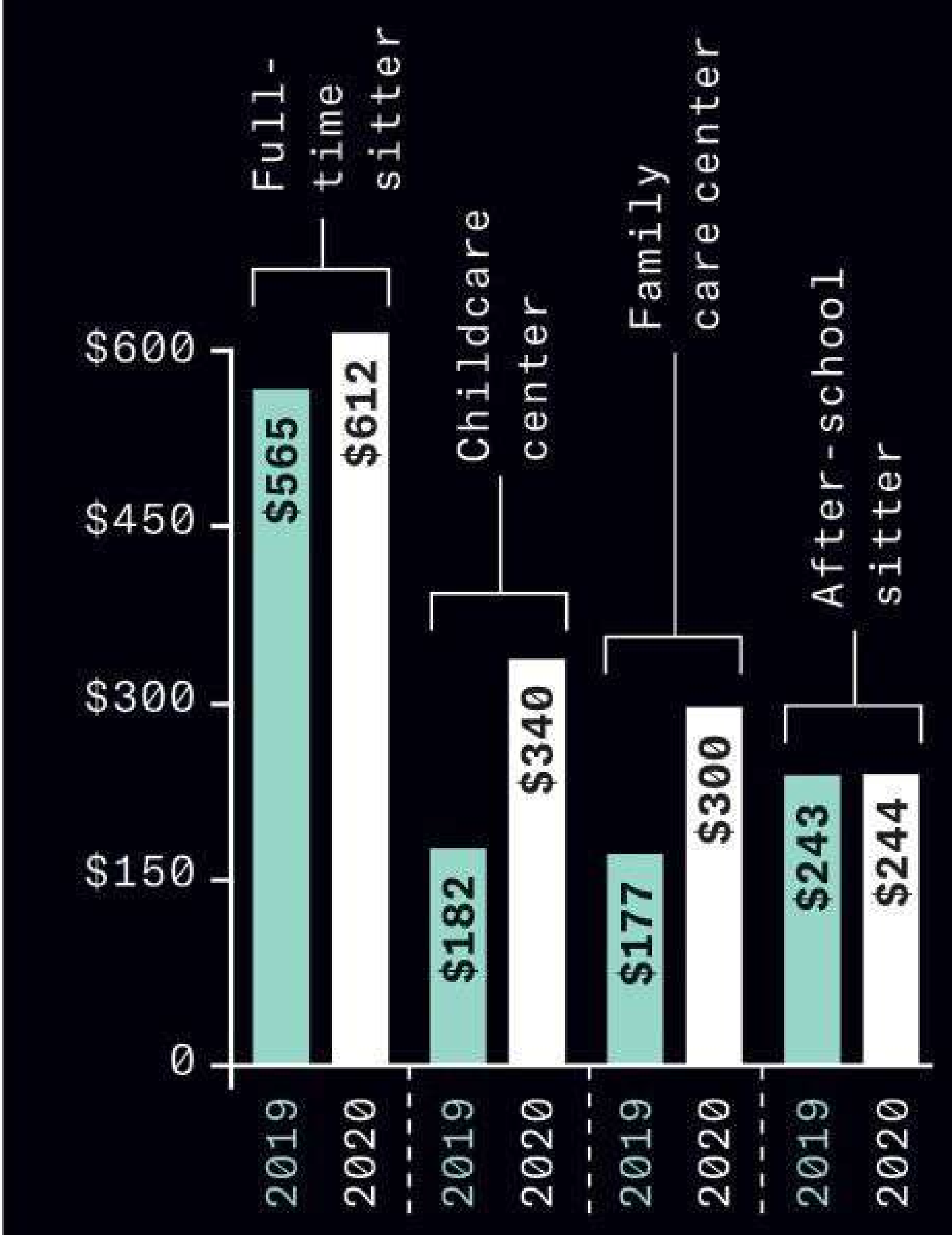
Percentage of parents who say they've added 15 or more hours of caregiving per week since the start of the pandemic:





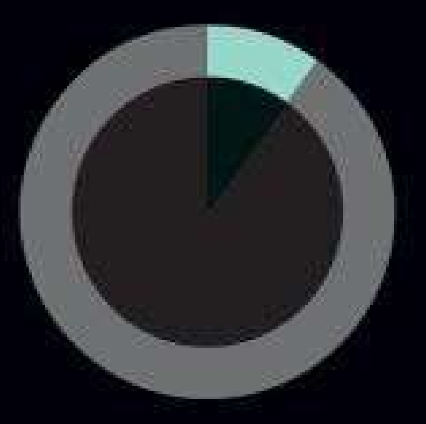
Rising Costs

Average national cost of childcare per week, 2019 vs. 2020 (for one child):

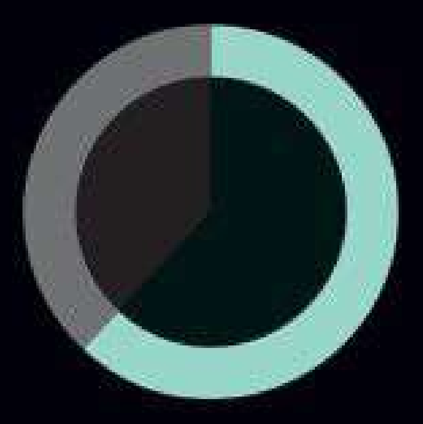


Pain Points

Identifying main sources of strain:

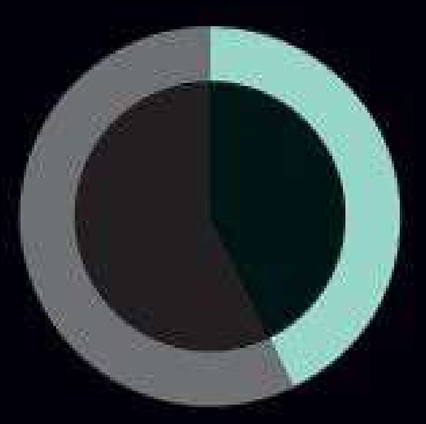


10% are less concerned about the cost of childcare

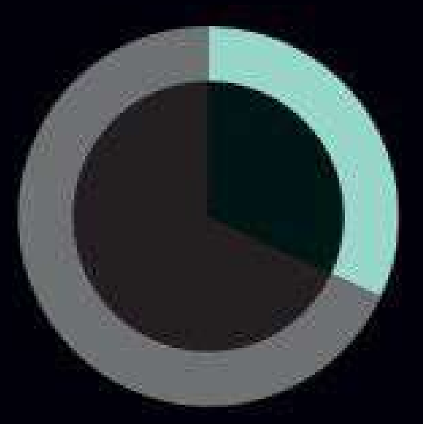


62% are more concerned about the cost of childcare

Of the 62%:



43% cite the increased cost of childcare centers



32% point to having to make a different arrangement

Sources: Care.com survey "This Is How Much Child Care Costs in 2021"; Care.com and LifeCare's *The Future of Benefits* report; "Safely Back to School After Coronavirus Closures," McKinsey & Company; McKinsey American Opportunity Survey

Reimagining employee and customer experience

QUALTRICS IS HELPING ORGANIZATIONS LISTEN MORE EFFECTIVELY TO DRIVE GROWTH AND TRANSFORMATION

"Are you okay?" That's the first question that managers at Qualtrics, a leading experience management company, asked employees when lockdowns began in the spring of 2020. It's a question that came naturally to a company devoted to fostering cultures of deep empathy and listening.

Jesse Purewal, the company's global head of brand, defines experience management like this: "It's the discipline of sensing, analyzing, and acting upon customer and employee sentiment to help companies drive growth and transformation."

To discover customer and employee sentiment, you need to ask questions. Then listen. Then keep listening. Over time, Purewal says, Qualtrics has developed a "sensing mechanism" based on intelligent technology that allows the company to identify ways its customers can design and improve the experiences of customers and employees alike.

This deeply ingrained practice of proactive listening is a big reason why *Fast Company* presented Qualtrics with a 2021 Brands That Matter award.

CLOSING EXPERIENCE GAPS

As Qualtrics managers continued to check in with employees last year, they soon came to identify experience gaps—gaps between what they should experience and what they do experience. Employees were expressing concerns about when they would return to work and how they would know it was safe once they did. They were also worried about the safety and mental health of their kids as schools began to reopen.

By the time these concerns were being echoed in society at large, Qualtrics was already working on solutions. "We're organized into agile teams that are small and nimble enough to pivot when change is needed," Purewal says.

Qualtrics
ALT
RICS

Two solutions that emerged were Back to Business, a platform that allows companies to gauge employee sentiment and track COVID test results to determine when and how to reopen workplaces, and Return to Learn, a resource to help parents, students, and administrators make informed decisions about returning to school.

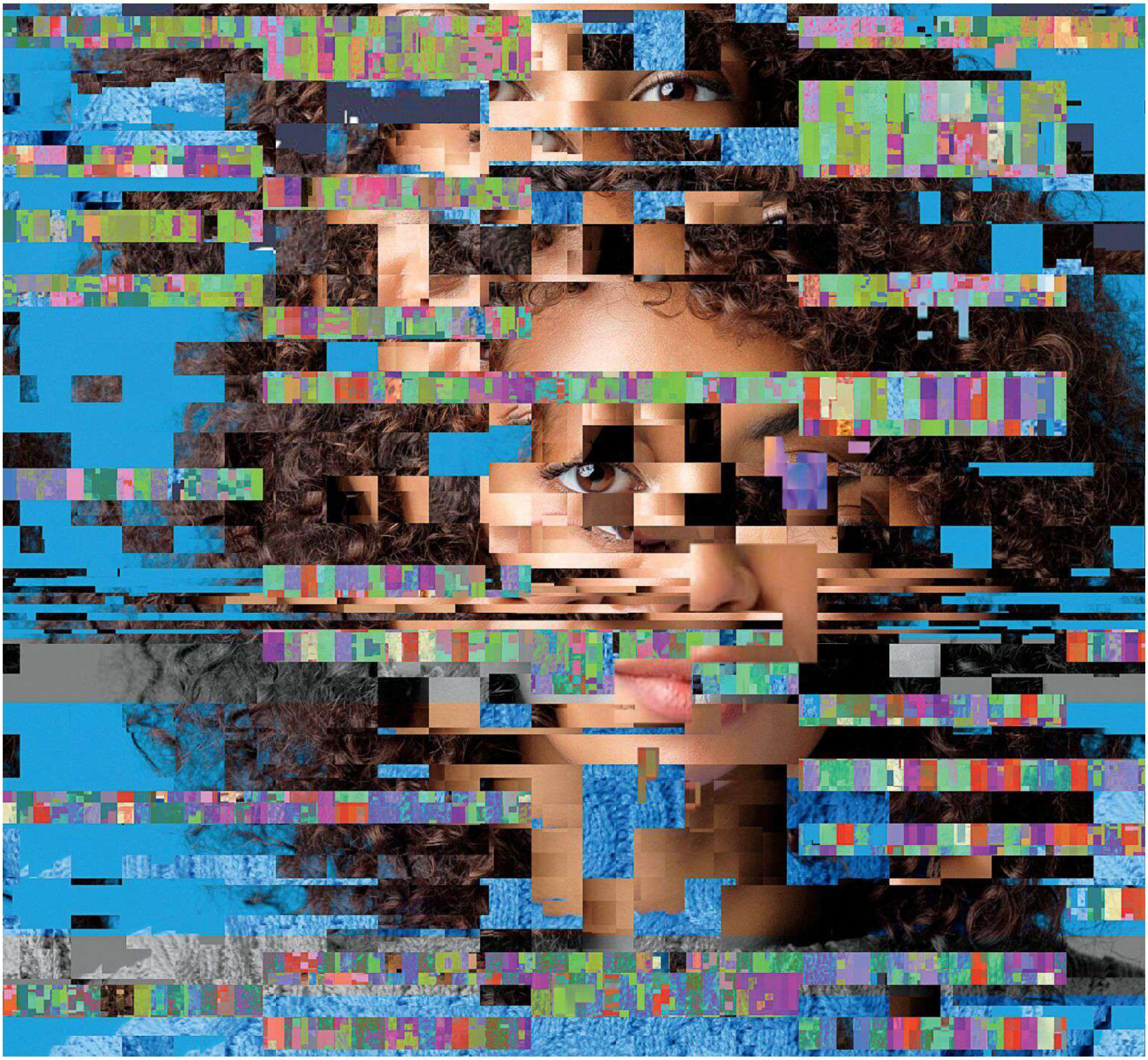
Since then, Qualtrics has continued to innovate to meet changing needs during the pandemic. Last fall, the company rolled out vaccine management solutions that governments could use to prioritize vaccine recipients. It also partnered with the NBA to help improve the experience of players, fans, and employees as it completed the 2019–2020 season in "the Bubble" in Orlando.

The courts used in "the Bubble" displayed a message that resonated with Qualtrics: BLACK LIVES MATTER. The previous spring, in the wake of the George Floyd murder, Qualtrics had committed to becoming an antiracist company. Soon after, it released a suite of DE&I solutions to help companies measure employee feelings of individual belonging and psychological safety, with the aim of building more diverse, equitable, and inclusive organizations. These solutions were built on a foundation of research from Qualtrics showing that diverse organizations have higher levels of engagement, employee retention, ability to attract talent, and innovation.

Throughout this challenging period, Qualtrics continued to grow. The company went public this past January, further unlocking its potential to drive leadership in the experience management category and enabling more companies to put breakthrough experiences into the world.

As Qualtrics sets its sights on further innovations, it's not losing sight of its purpose: reducing the world's tolerance for bad experiences. "We have this world-class technology that aggregates a tremendous amount of data to help organizations and their customers," Purewal says. "But what I really like about it is that it encourages us all to remember that behind every one of those data points is an actual human experience that we have a chance to improve."

CREATED BY FASTCO WORKS CONTENT STUDIO AND COMMISSIONED BY qualtrics.XM



Source image: Zoonar GmbH/Alamy; spot illustrations: Kemal Sanli

Seeing and Believing

Manipulated images are rampant, and problematic. Adobe, the photo-editing forebearer, has a solution.

BY KATHARINE SCHWAB

In the photo, Beyoncé looks beatific, with a closed-lip *Mona Lisa* smile. But it's easy enough to give her a toothy grin. Just dial up her "Happiness" to the maximum level using Adobe Photoshop's Smart Portrait tool, and her face gets a Cheshire cat–like smile, white teeth appearing out of thin air.

Smart Portrait, released in beta last year, is one of Adobe's AI-powered "neural filters," which can age faces, change expressions, and alter the background of a photo so it appears to have been taken at a different time of year. These tools may seem innocuous, but they provide increasingly powerful ways to manipulate photos in an era when altered media spreads across social media in dangerous ways.

For Adobe, this is both a big business and a big liability. The company, which brought in $12.9 billion in 2020, with more than $7.8 billion tied to Creative Cloud products aimed at helping creators design, edit, and customize images and video, is committed to offering users the latest technologies, which keeps Adobe ahead of its competition. This includes both neural filters and older AI-powered tools, such as 2015's Face-Aware Liquify, which lets people manually alter someone's face.

Adobe executives are aware of the perils of such products at a time when fake information spreads on Twitter six times faster than the truth. But instead of limiting the development of its tools, Adobe is focused on the other side of the equation: giving people the ability to verify where images were taken and see how they've been edited. Step one: a new Photoshop tool and website that offer unprecedented transparency into how images are manipulated.

Adobe has been exploring the edge of acceptable media editing for a while now. During the company's annual Max conference in 2016, it offered a sneak peek of a tool that allowed users to change words in a voiceover simply by typing new ones. It was a thrilling—and terrifying—demonstration of how AI could literally put words into someone's mouth. A backlash erupted around how it might embolden deepfakes, and the company shelved the tool.

Fake information spreads on Twitter six times faster than the truth.

Two years later, when Adobe again used Max to preview cutting-edge AI technologies—including a feature that turns still photos into videos and a host of tools for video editing—Dana Rao, its new general counsel, was watching closely. After the presentation, he sought out chief product officer Scott Belsky to discuss the repercussions of releasing these capabilities into the world. They decided to take action.

Rao, who now leads the company's AI ethics committee, teamed up with Gavin Miller, the head of Adobe Research, to find a technical solution. Initially, they pursued ways to identify when one of Adobe's AI tools had been used on an image, but they soon realized that these kinds of detection algorithms would never be able to catch up with the latest manipulation technologies. Instead, they sought out a way to show when and where images were taken—and turn editing history into metadata that could be attached to images.

The result is the new Content Credentials feature, which went into public beta this October. Users can turn on the feature and embed their images with their identification information and a simplified record of edits that notes which of the company's tools have been used. Once an image is exported out of Photoshop, it maintains this metadata, all of which can be viewed by anyone online through a new Adobe website called Verify. Simply upload any JPEG, and if it's been edited with Content Credentials turned on, Verify will show you its metadata and editing history, as well as before-and-after images.

Content Credentials is part of a larger effort by both tech and media companies to combat the spread of fake information by providing more transparency around where images come from online. An industry consortium called the Coalition for Content Provenance and Authenticity (C2PA), which includes Adobe, Microsoft, Twitter, and the BBC, recently created a set of standards for how to establish content authenticity, which are reflected in Adobe's new tool. Members of the group are also now backing a bill in the U.S. Senate that would create a Deepfake Task Force under the purview of the Secretary of Homeland Security.

But while Adobe has thrown its weight behind this fledgling ecosystem of companies championing image provenance technologies, it also continues to release features that make it increasingly easy to alter reality. It's the accessibility of such tools that troubles researchers. "Until recently . . . you needed to be someone like Steven Spielberg" to make convincing fake media, says University of Michigan assistant professor Andrew Owens, who has collaborated with Adobe on trying to detect fake images. "What's most worrisome about recent advances in computer vision is that they're commoditizing the process."

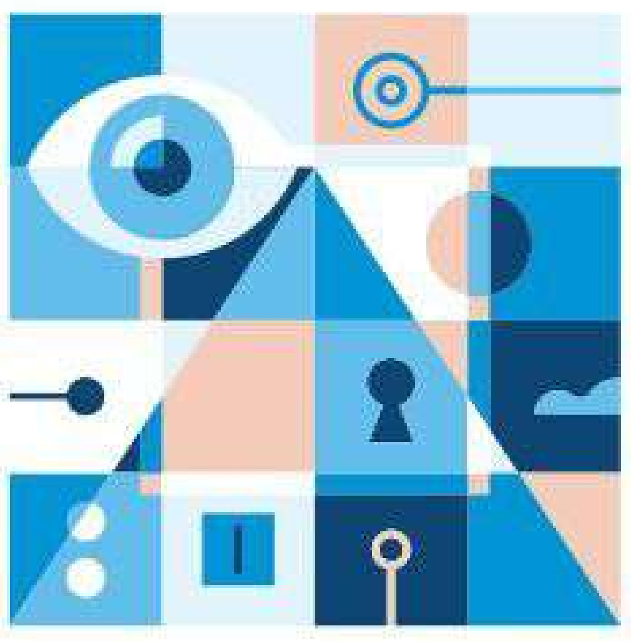
For content provenance technologies to become widely accepted, they need buy-in from camera-app makers, editing-software companies, and social media platforms. For Hany Farid, a professor at UC Berkeley who has studied image manipulation for two decades, Adobe and its partners have taken the first steps, but now it's up to platforms like Facebook to prioritize content that has C2PA-standardized metadata attached.

"You don't want to get in the business of [saying] 'This is true or false,' " says Farid. "The best [Adobe] can do is to arm people—the average citizen, investigators—with information. And we use that as a launchpad for what comes next: to regain some trust online."

TRUTH OR DARE

Three other efforts to authenticate images before they're released into the wild

TRUEPIC
Content provenance company Truepic recently announced an SDK that will allow any app with a camera to embed images and videos with verified metadata.



STARLING LAB
A project between Stanford and the USC Shoah Foundation, this lab uses cryptography and decentralized web protocols to capture, store, and verify images and video.

PROJECT ORIGIN
Microsoft and the BBC joined forces in 2020 to help people understand whether images and videos have been manipulated.

Young and Restless

The clothing-resale platform Depop has become both a style and social hub for Gen Z. CEO Maria Raga explains how.

BY AMY FARLEY

F

Few companies understand what Gen Z wants as well as Depop. The fashion-resale platform has 30 million registered users—and 90% of its active users are under the age of 26. They use the site not only to buy and sell vintage clothes but also to coalesce into different communities based on style, from "cabincore" L.L. Bean–inspired looks to Y2K homages complete with Juicy Couture tracksuits. Maria Raga, who became CEO of Depop in 2016, has overseen the company's growth and—in June—its $1.6 billion acquisition by Etsy, a move by the e-commerce giant to capture both the burgeoning fashion-resale market and the hearts and minds of younger shoppers. Here, Raga explains how to build a platform that's authentic.

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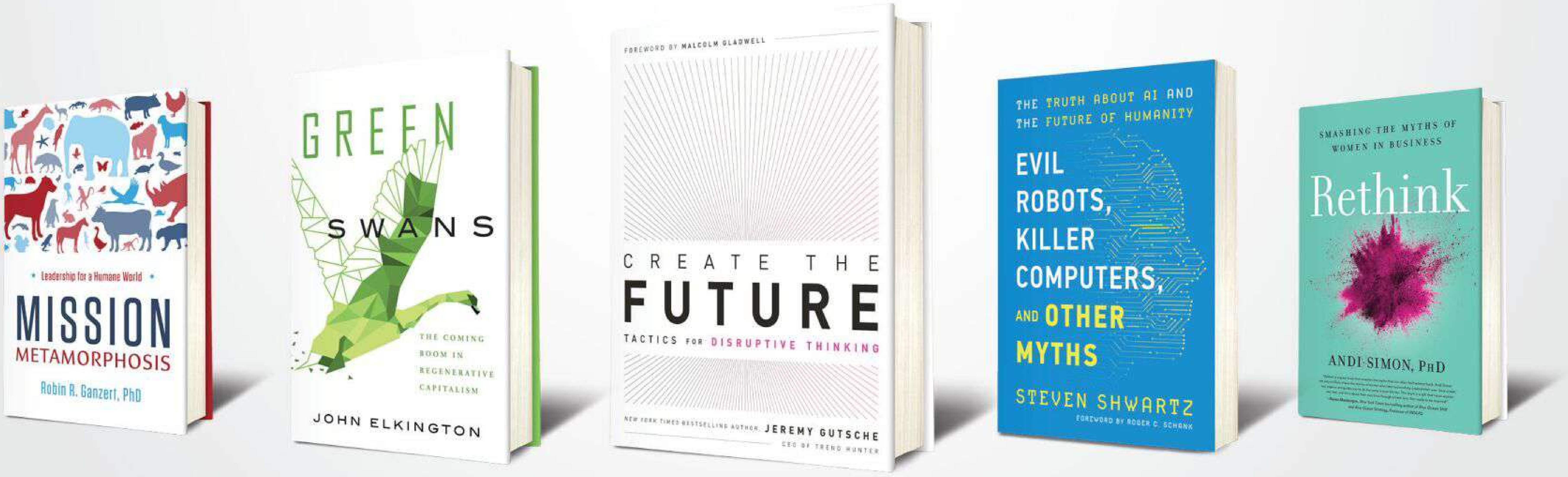
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Illustrations by Abbey Lossing

FACE YOUR SKEPTICS

Raga began her career as a consultant at Bain & Company before leaving to work at tech startups: First, she joined Privalia, an early private-sale site, and then the online-voucher pioneer Groupon. Though she enjoyed the excitement of being at these companies during their early years, she says it wasn't always easy to get people to understand what the startups did: "When you're doing something new, there are always going to be skeptics—people aren't used to it; they don't see 'it.' " She faced similar headwinds when she became Depop's vice president of operations, in 2014, at a time when resale was still seen as the purview of thrift shops and flea markets. "Back in the day, it was a bit embarrassing for me to say that I was working in a business that was all about resale. My friends were like, 'Why would you do that?' " she recalls. "It took a lot of convincing, especially on the investor front. For three or four years, [I was] evangelizing, [saying] 'Resale is going to be big.' " Today, the secondhand market is worth more than $36 billion and is expected to double within five years.

PLAY IT COOL

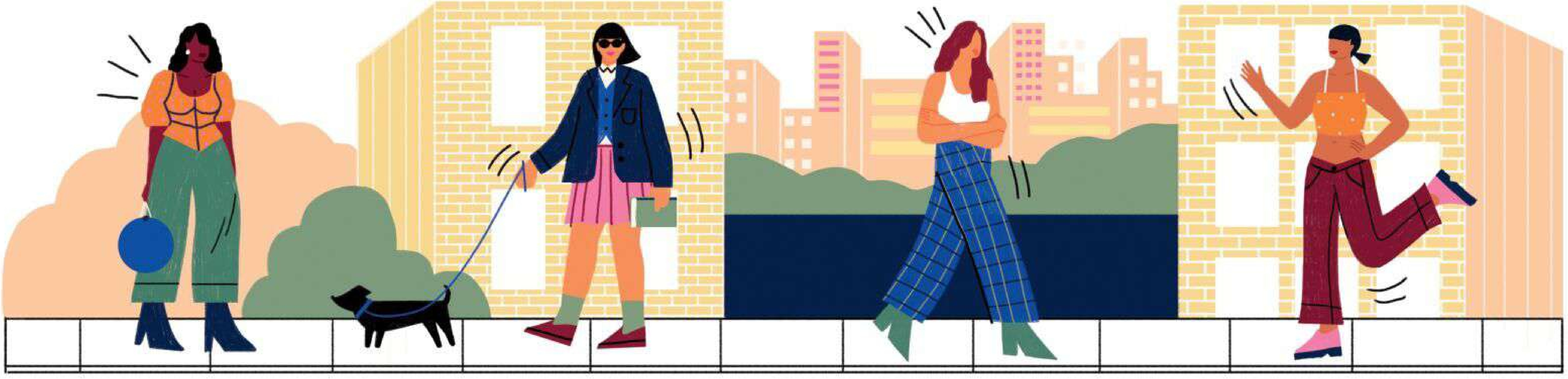
Depop appeals to younger users, but wasn't built specifically for them when it launched, in 2011. "We have a set of values that happens to resonate quite well with Gen Z," says Raga. The site encourages creativity and self-expression through its Instagram-esque photo feeds, which allow users to like, comment, and message one another, and taps into people's entrepreneurial sides by permitting anyone to set up a side hustle—all of which are priorities for Gen Z, according to a recent study that Depop conducted with Bain. (Depop's resale model also appeals to Gen Z's interest in sustainability.) Having a platform that's authentic to Gen Z—rather than retrofitted to appeal to them—is key, says Raga. When fashion brands want to partner with Depop, she encourages them to think similarly. For a 2020 Vans collaboration, the shoemaker partnered with leading Depop sellers, who each designed a pair of sneakers and sold them on the site. "It's all about showcasing creativity or bringing heritage brands back," Raga says.

STAY CURIOUS

Though she leads a company with Gen Z users, Raga, who is 42, is not part of that generation. "I thought that it could be an issue," she admits. "But I realized that makes me more open-minded, more willing to learn from them and understand how they think—versus trying to build things to my own taste." To ensure that her company remains tapped into younger users, she invites sellers (in non-COVID times) into Depop's offices to pack and ship off their items. She also pays close attention to how people are using the platform. One of Depop's most popular features—the ability for a seller to bundle a number of items into a single sale—came after watching users hack together a less elegant solution online. Raga says she takes a "community-first mentality" to growing Depop. "It's a very organic way to grow. You don't invest a lot of money in marketing," she says. "So it takes a bit longer, but at the same time, it's a lot more sustainable. And definitely a lot more profitable."

FAST FASHION

Depop has become fertile ground for new style trends. We've rounded up some of the platform's top search terms.



01

Corset Tops
Blame *Bridgerton*. Corset tops were among the most searched-for items throughout the summer. They also play into the "princesscore" look. Think full skirts, gloves, and pearls.

02

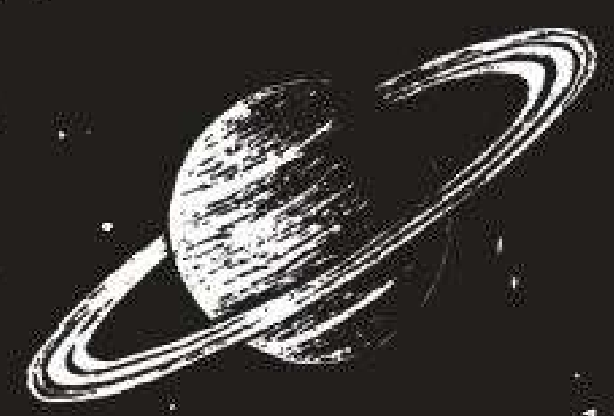
Preppy
The kids are ready to be back in school—or at least to look like it. Users are seeking out blazers, cardigans, argyle skirts, and anything else with a preppy spin.

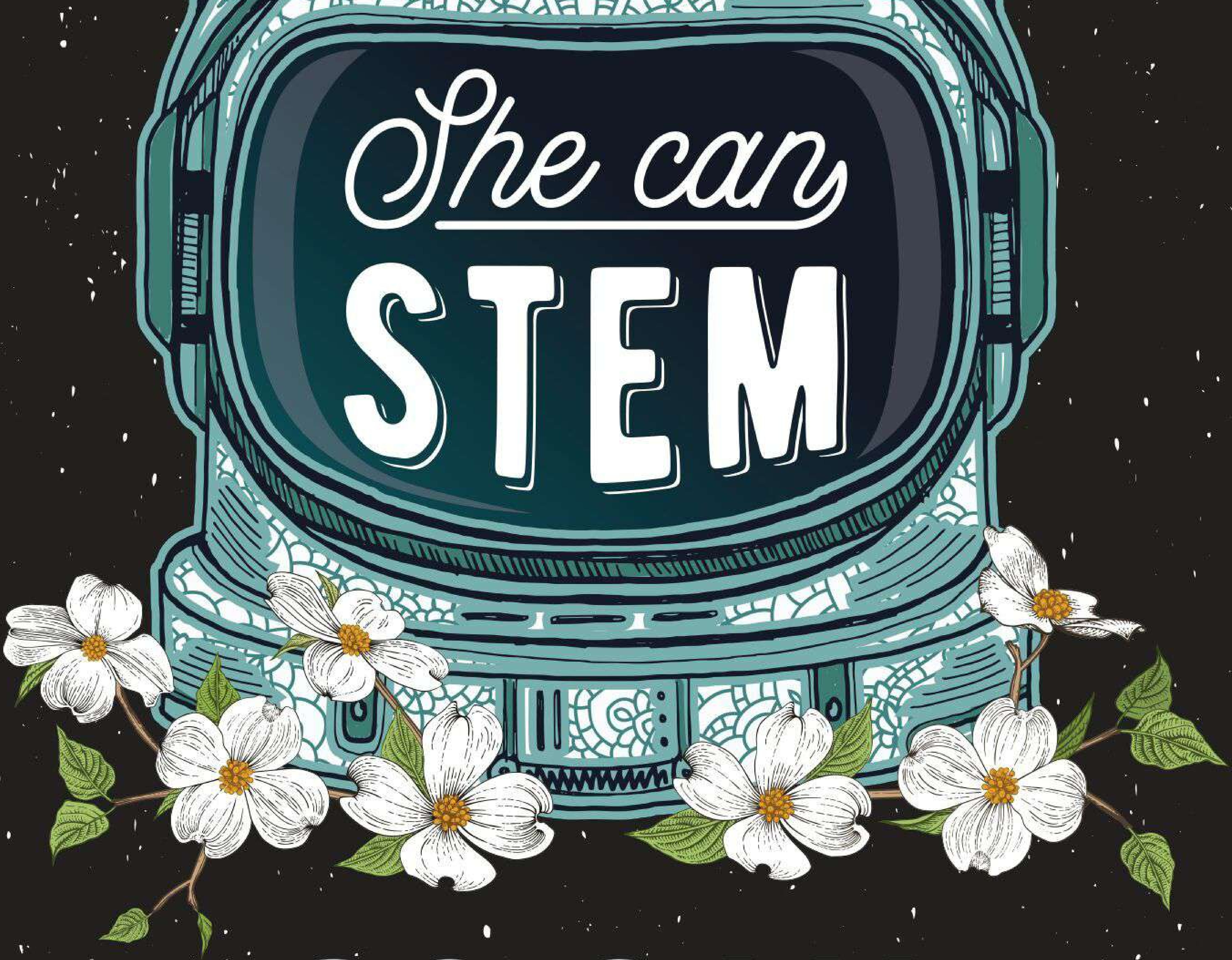
03

Olivia Rodrigo
The 18-year-old singer didn't just have a hit album with *Sour*. She's one of the most popular searches on Depop, as people look for her merch (including CDs) and *Sour*-inspired handmade jewelry.

04

Y2K
The turn-of-the-millennium look has been hot this year, encompassing the low-slung jeans, strappy tanks, trucker hats, and blingy belts of the Paris-Britney era.




She can
STEM

SO CAN YOU.

SARAI LLAMAS + AMPLIFIER.ORG

@SheCanSTEM

The power of play as a teaching tool

CATERPILLAR'S LIFE-SIZE HOT WHEELS RACE TRACK SHOWCASES THE VALUE OF STEM EDUCATION AND THE LATEST IN CAT MACHINE INNOVATION

Caterpillar manufactures some of the most advanced machinery in the world—excavators capable of moving mountains, generators that can power entire hospitals, road graders that move with millimeter precision. But there's more to these machines than raw horsepower and cutting-edge GPS technology.

To show just how capable they are, Caterpillar created the Cat Trials. Unlike traditional proving grounds, the Cat Trials take a decidedly unfussy approach to putting heavy machinery through its paces. Previous Trials have featured skilled operators playing an oversized game of *Jenga* with 600-pound playing pieces and a collection of autonomous bucket loaders playing *PAC-MAN* on a 30,000-square-foot game board. For the most recent one, Cat Trial 11: Hot Wheels, Caterpillar created a life-sized racecourse.

Here, **Kelly Kyer**, Caterpillar's global brand strategy and activation manager, reveals the strategy behind the company larger-than-life challenges.

Why did Caterpillar start the Cat Trials?

The Trials live at the intersection of Cat machines, services, and technology. Our goal is to use gamification to showcase the capabilities of our products, bringing the potential of these machines and services to life for our customers, brand fans, as well as a broader audience. For Cat Trial 11: Hot Wheels, we also focused on an audience of STEM education students as well as innovators.

How does Cat Trial 11: Hot Wheels focus on innovation?

We wanted to showcase what's possible with our equipment—and also have fun. We also wanted to demonstrate the real-life application of innovation in our newly launched 982 XE Next Generation Medium Wheel Loader (featured in the Trial) that our engineers spent more than of six years perfecting. Between its ability to track everything from material moved, hours worked, and fuel burned, we think it's a prime example of industry innovation.

Why did you collaborate with Hot Wheels?

Both companies understand the power of play—and the continued need for innovation across industries. That said, I'd be remiss if I didn't note that many of us have a lot of love and nostalgia for playing with Hot Wheels cars back in the day, along with our Cat excavators, wheel loaders, and trucks.

How did you build the racetrack?

Safety is a core value here at Caterpillar. To ensure both safety and success, we brought in professional track designers as well as multiple customer operators from across North America to design and build our 6,500-foot true-to-life track.

Operators leveraged Cat 3D GPS technology to create a precise uniform track width, following the exact specs given by the professional stunt drivers, Tanner Foust and Greg Tracy.

Why does Caterpillar value STEM so highly?

Every day, Caterpillar's 11,000-plus engineers and technologists work to develop innovative solutions to help our customers succeed. However, continuing this pace of innovation requires more students to pursue STEM education.

We know that students who foster innovation and creativity within a STEM program will be even more prepared as they join the industry and attempt to solve future challenges for key industries, including construction, mining, electric power, off-highway industries, and more. As an industry-leader with more than 12,000 granted patents to our name, we feel strongly about helping to build that pipeline. ■

CELEBRATING STEM – The Power of Play

19/68
HOT WHEELS
CAT TRIAL 11:
Built to be Rebuilt

When was the last time you played? Remember that sense of wonder and joy when adventures were limited only by what you could imagine? **Cat Trial 11: Hot Wheels®** is a salute to imagination.

Scan the code or go to Cat.com/Trial11 to watch the new trial video and see how we are celebrating the power of play and STEM – the foundation for innovators of the future.

CAT®

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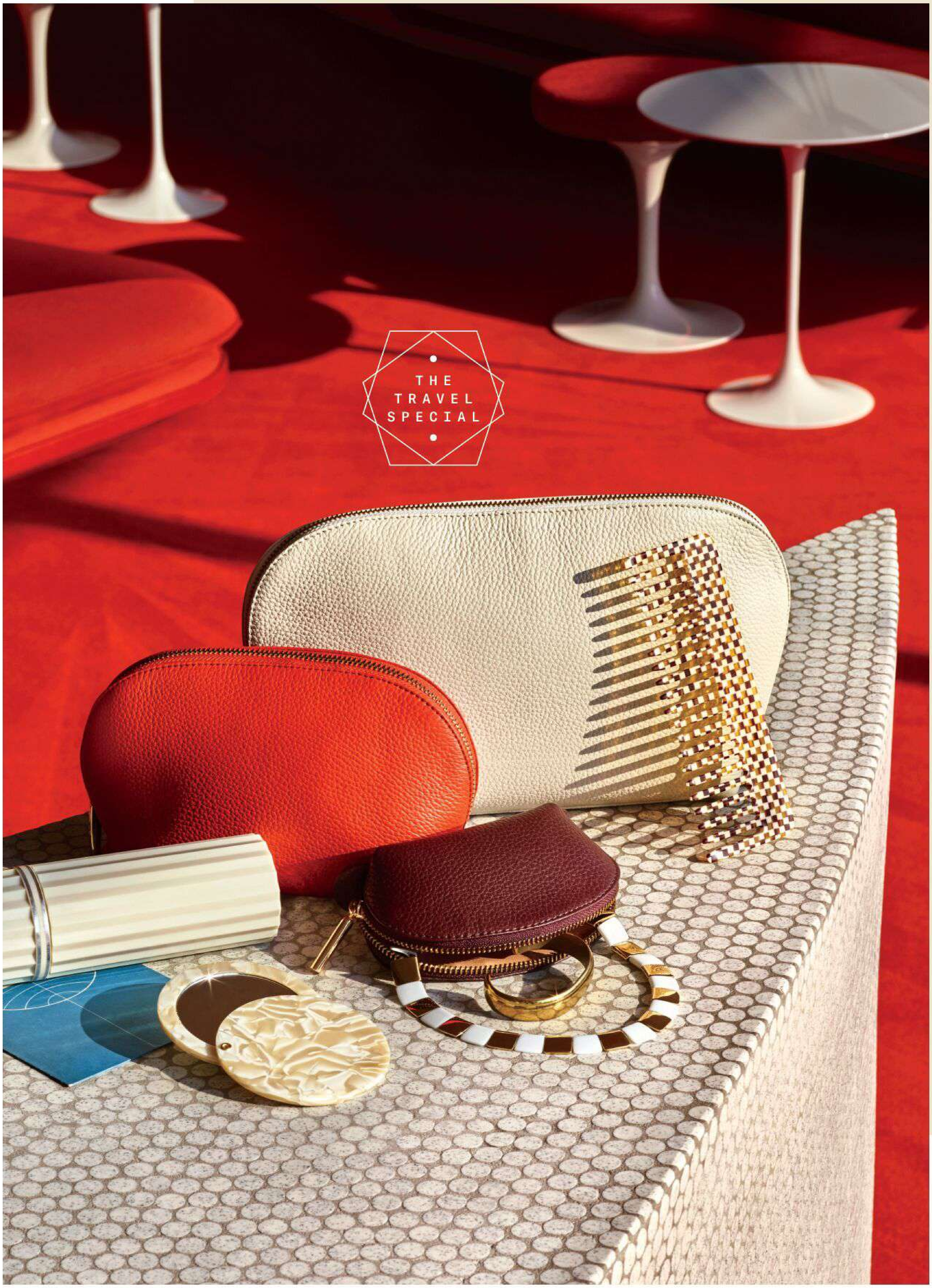
Cash is food
Cash is water
Cash is hygiene
Cash is relief
Cash is safety
Cash is flexible
Cash is best

Donating cash to international relief efforts is the best way to ensure those in need get what they need

USAID
FROM THE AMERICAN PEOPLE

CENTER FOR INTERNATIONAL DISASTER INFORMATION



First Class

A toiletry bag and accessories to help you travel in style

BY YASMIN GAGNE

This Leather Travel Case Set *($125, cuyana.com)*, from minimalist brand Cuyana, can hold all your essentials. The leather bags come in a variety of colors, from bright red to muted gray. Pack them with vibrant combs and travel mirrors *(from $42, shopmachete.com)* by Atlanta-based accessories brand Machete. Photographed at the TWA Hotel (*rooms from $252, twahotel.com*), housed in Eero Saarinen's iconic TWA Flight Center at New York's JFK airport.

PHOTOGRAPHS BY JOYCE LEE

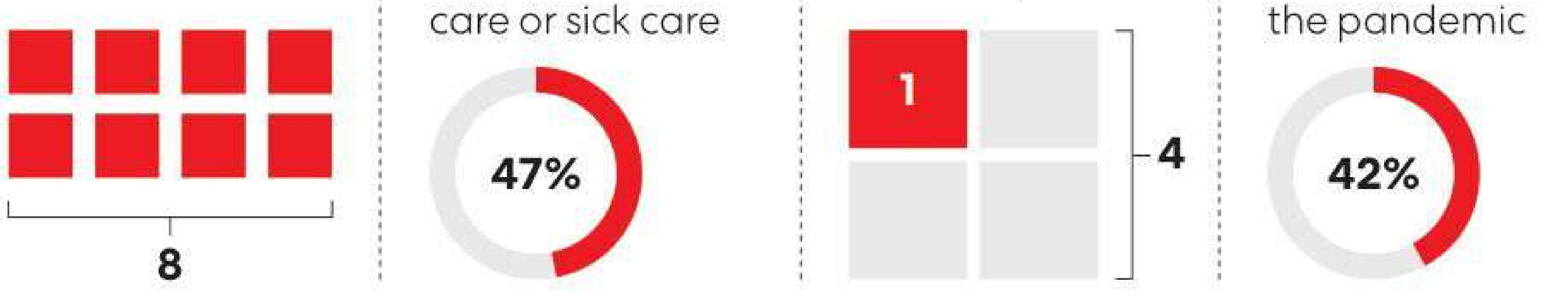
Initial Idea

Never lose your passport again with a monogrammed pebbled leather holder from Leatherology *(from $50, leatherology.com)*. The brand lets you personalize accessories with embossed monogramming options in three fonts, adding a touch of Wes Anderson whimsy to any journey.

HIRE LEARNING

U.S. Employees on Holiday

- Average number of days taken in 2020
- Used at least one vacation day in 2020 for child-care or sick care
- Haven't taken a vacation in over a year
- Canceled at least one trip in 2020 because of the pandemic



Source: Expedia Annual Vacation Deprivation Survey 2021 (Hire Learning)

PLAYLIST

Soundtrack for Traveling

Bheki Dube, founder and CEO, Curiocity Africa

01 **"Izolo"**
DJ MAPHORISA & TYLER ICU

I am born, bread, and buttered in "Johustleburg." Amapiano music has become an international sound experience, and the "Izolo" track reminds me of the city.

02 **"Stimela"**
HUGH MASEKELA

Whether I am departing for or returning from a trip, [this song] hits home. It speaks to our essence and to our purpose.

03 **"Travellin' Man"**
MOS DEF

I am constantly between different spaces, visiting my existing hotels or looking for new hotel opportunities, and this is my anthem as I move between different territories.

04 **"Nowhere2go"**
EARL SWEATSHIRT

Earl is my favorite griot, artist, and musician. When I want to take it all in—the experiences, the hotel deals, and interactions—I put on Earl Sweatshirt and he makes it all seem clear for me.

PORTRAIT ILLUSTRATION BY YANN LEGENDRE

REC
@Avery_GoodDay
“Too bad this sensor can’t sense how much it hurts my wrist.”

Hear what they’re saying. See what they mean.

Improve your products, services, and brands by watching real reactions and experiences, from real people, delivered real fast.

Real. Human. Insight.

UserTesting®

usertesting.com

WHAT I CHECK FIRST

My Daily Media Diet

Pilar Guzmán,
cofounder, The Swell

Instagram
@JESSICAYELLIN
The former CNN White House Correspondent is the most balanced, least frenzied filter and commentator on national and international news.

Twitter
@RTRAISTER
I'm a fan of *New York Magazine* columnist Rebecca Traister. Her work goes a long way toward justifying righteous female fury, now and throughout history.

Newsletter
WORRY PROOF
Pediatrician and cofounder of OOMLA Cara Natterson's newsletter on parenting demystifies science into practical advice.

Website
HUBERMANLAB.COM
A portal into the mind of neurobiologist and ophthalmologist Andrew Huberman. He offers neurochemical explanations to the human condition.

FAVORITE THING

Power Tool

Atlanta-based preppy brand Sid Mashburn collaborated with legendary knife maker Victorinox on this bold and colorful multipurpose tool *($26, sidmashburn.com)* that will help you file fingernails, open letters, tweeze, and more. Just remember to check your bag: The pocketknife has scissors and a blade.

TRAVEL TRICK

Upgrades

"Always ask for an upgrade when checking into a hotel. They often have perks, whether it's a room upgrade, a late check-out, a free bottle of champagne, or access to a great dinner reservation."
—Jan Seale, cofounder and CEO, Out of Office

DREAM DESTINATION

"The Eden Rock resort in St. Barths is second to none. Perched on a rocky outcrop, the hotel is right on the water."
—Khalid Meniri, founder, Selfbook

Yann Legendre (Guzmán)

ILLUSTRATIONS BY HOLLY WALES

Making life better for jobseekers

THE WORLD'S LEADING JOB SITE AIMS TO RESHAPE THE HIRING PROCESS. AGAIN.

When Indeed launched in 2004, it had one essential idea that set it apart from the competition: focus on doing what's right for the jobseeker. This philosophy has made Indeed one of today's leading job sites, drawing more than 250 million unique visitors each month and delivering nearly half of all hires in the U.S. The company's mission—"we help people get jobs"—has helped drive innovation and guide the company's response to the COVID-19 pandemic. It's also what helped Indeed land a spot on this year's list of *Fast Company*'s Brands that Matter.

"Part of what makes Indeed unique in our space is our mission-focus: Everyone in the organization is 100% focused on helping people get jobs," says Jennifer Warren, Indeed's vice president of global brand marketing. "Our goals now are to reduce the time to get hired, break down barriers to employment, and increase happiness at work."

REACTING TO COVID

When COVID hit, the company realized that job seekers and employers needed help to deal with a fast-changing labor market and hiring landscape. "There had never been a more important time for us to really lean on our mission and say, 'How can we help most?'" Warren says.

Indeed quickly released several features to connect job seekers with employers who needed workers right away. For example, job seekers were able to add the hashtag #readytowork to their résumés to alert employers that they were available immediately, and companies could indicate if a job posting was "urgently hiring." In a time of such uncertainty, jobseekers were provided with tools to learn about a potential new employer's COVID-19 protocols. The job site also launched a series of virtual hiring events that resulted in more than 20,000 people being hired.

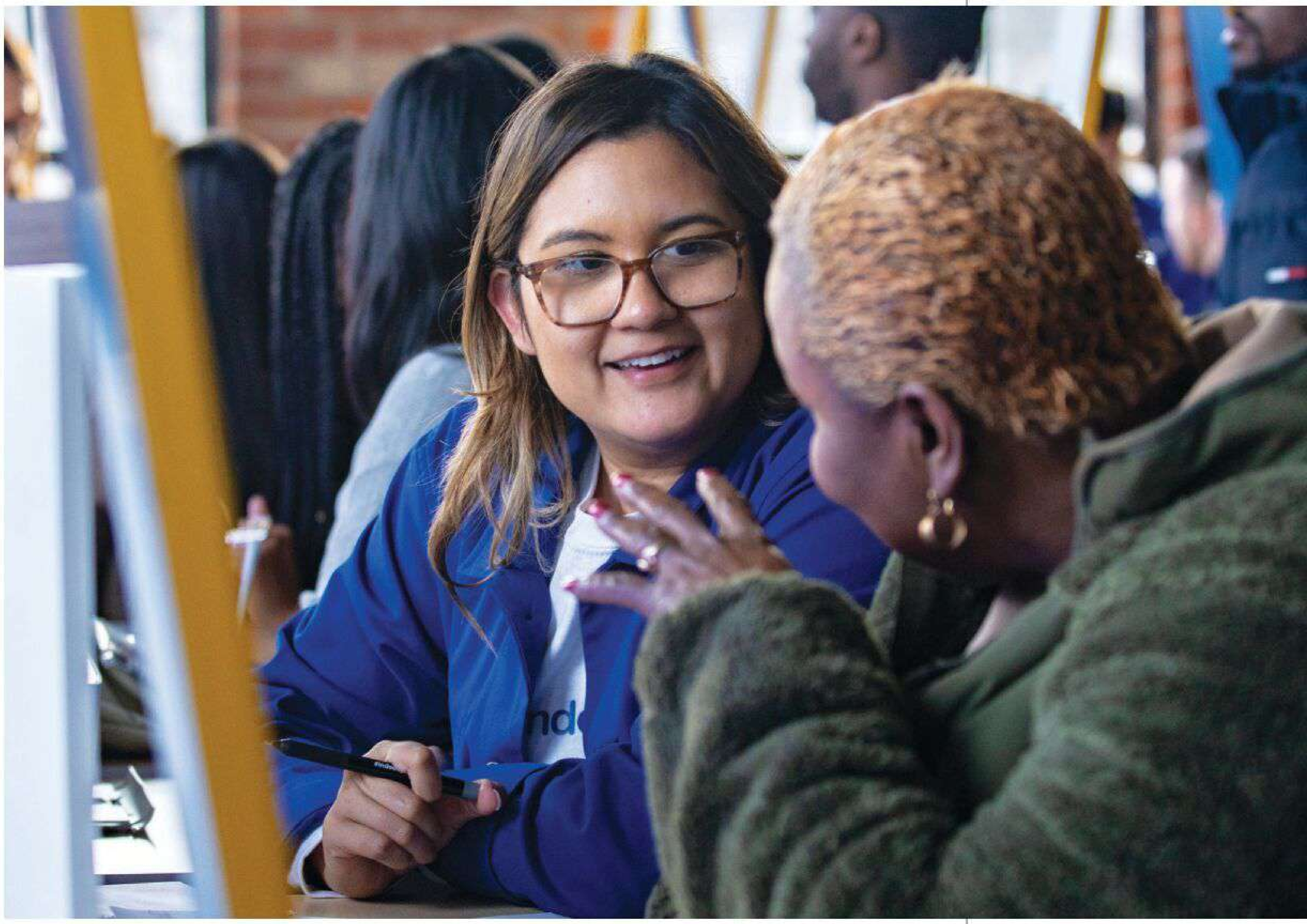
A FASTER HIRE

The pandemic has also created a sense of urgency around one of Indeed's long-term goals: reducing the time involved in the job search and hiring process. "Right now, 40% of Americans would fall below the poverty line if they lost income for three months, so making job searches faster is important," Warren says. To accelerate hiring, the company introduced free video interviewing options for all jobs posted to its site that reduces the time between application and contact by 20%.

The company also launched the Indeed Hiring Platform, which dramatically reduces the time it takes to get candidates into jobs—from weeks to days—by automating time-consuming manual recruiting tasks so initial interviews occur faster. Since employers set objective screening criteria, all job seekers whose skills are a match have the opportunity to interview.

"We know that talent is evenly distributed, but opportunity is not, and we are trying to figure out how to create that opportunity for everyone," Warren says. "When we say we want to help people get jobs, we mean all people."

▼ **AN INDEED EMPLOYEE** counsels a jobseeker at an Indeed-sponsored job market event.

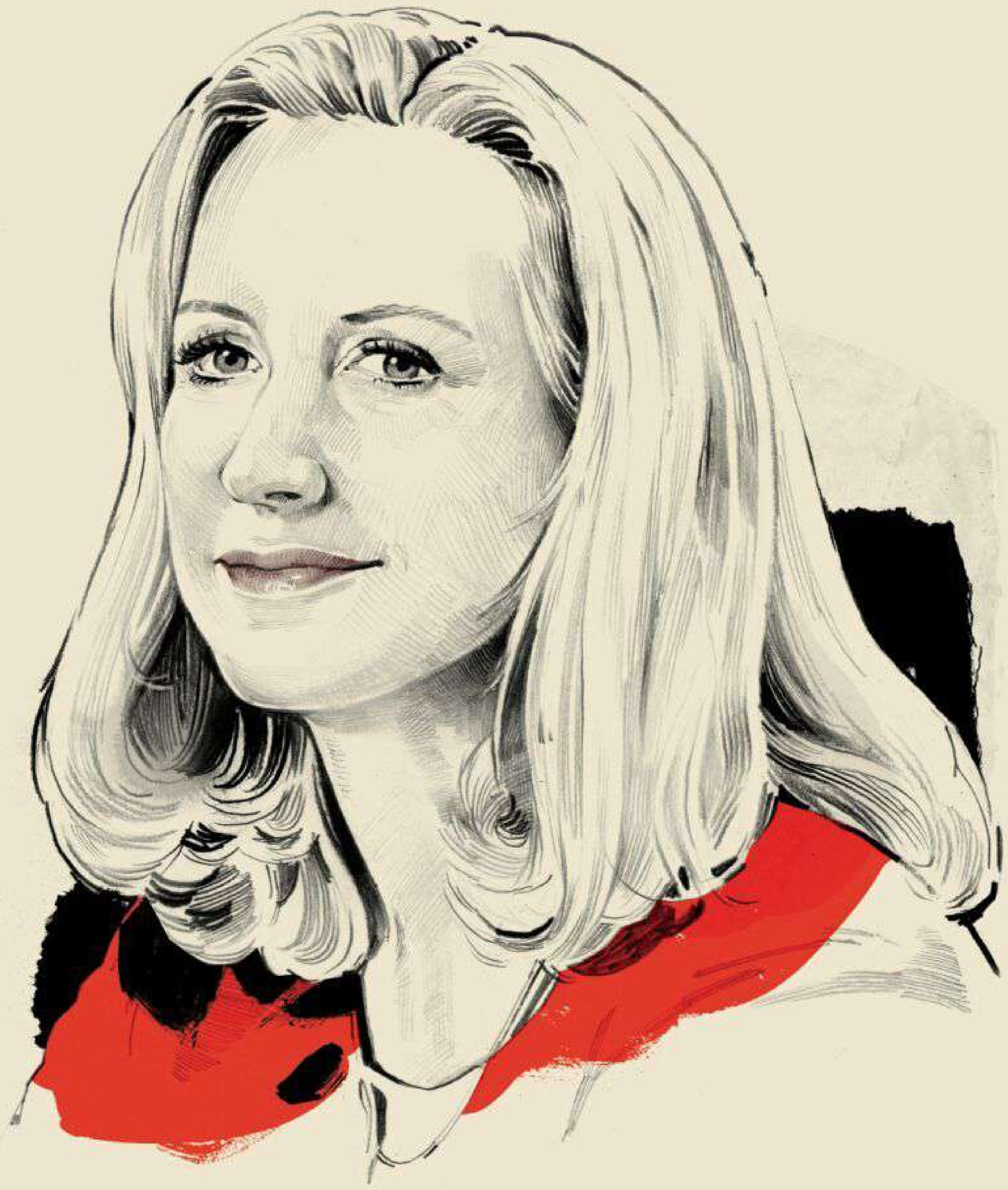


CREATED BY FASTCO WORKS CONTENT STUDIO AND COMMISSIONED BY indeed

r. | my operating system.

STEPHANIE LINNARTZ
PRESIDENT, MARRIOTT INTERNATIONAL

Illustration by
André Gottschalk



The Marriott International president takes our career questionnaire.

What's your best habit, and what's your worst one? I'm more "we" than "me"—I may lead a team, but we work collaboratively. But I take conference calls on my iPhone with the speaker on because I have misplaced my AirPods.

What do you do when you're creatively stuck? I run.

Is there a businessperson you admire? Arne Sorenson (Marriott's former president and CEO, who passed away in February). [I admired] his intellect, his natural curiosity, his open and warm manner, [and] the way he instilled confidence in his team.

What's the buzzword you never want to hear again? After this period of guiding our company through the pandemic, I'll never look at "unprecedented" in the same way.

What's the best mistake you ever made? I missed a meeting but ended up instead at another work event, where I reconnected with the man who would become my husband!

How do you unplug? I meditate.

Is there a book you recommend to everyone? *Grit: The Power of Passion and Perseverance*, by Angela Duckworth. She shows us how tenacity and persistence can be the determiners of success.

What's the advice you're glad you ignored? Someone told me that managing motherhood and a big career is close to impossible. Having a career I love has made me a better mother and role model for my kids.

Do you have a work uniform? My sentimental necklace has my children's initials on it. I also like necklaces that make a statement.

Do you have a style icon? Michelle Obama, always perfectly put together.

What's always in your bag? Monogrammed stationery from American Stationery to write thank-you notes.

Do you have a favorite object in your office? My Samsung Frame—it projects art and family photos when it's not being used as a TV.

What is your biggest indulgence? My daughter's chocolate chip cookies and brownies.

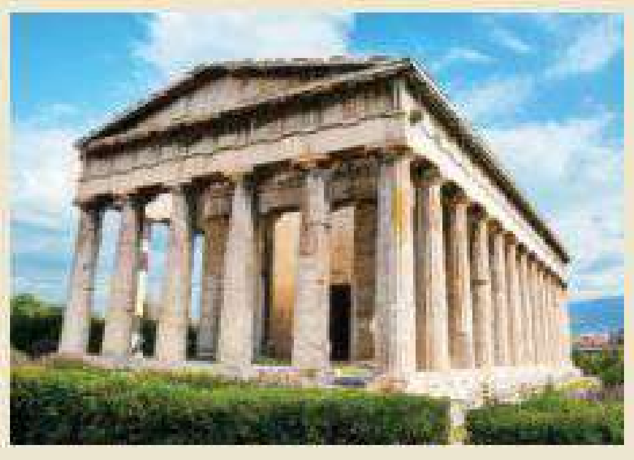
What TV show are you mid-binge on? *Schitt's Creek*—so many reasons why . . . Moira and David, to name two! It's clever, funny, and has a lot of heart.

Do you have a mantra? There are three things in life you can control—your actions, your efforts, and your attitude.

Do you have a "get pumped" song? Lizzo—"*Good As Hell*."

Is there a meeting you never miss? We have a regular meeting with Mr. Marriott [Bill Marriott, chairman of Marriott International] and other leaders, called "Taste Panel," where we taste food and beverages from our hotels around the world. The food is always delicious, and I love coming together with my colleagues and sharing an extraordinary meal.

LINNARTZ'S BEST TRAVEL DESTINATIONS



GREECE
It feeds the desire for culture and history. Bonus: the food.

MALDIVES
The real beauty of this place is the people, who are so welcoming.

TOKYO
I love the juxtaposition of the ultramodern architecture and historic temples.

NEW YORK CITY
New York seems like it is always reinventing itself, and I think that's magical.

Andriy Kravchenko/Alamy (Greece); BlueOrangeStudio/Alamy (Maldives); Sean Pavone/Alamy (Tokyo); Mihai Andritoiu/Alamy (New York)

Disability is the missing piece in the DEI Puzzle

DISABILITY:IN IS HELPING COMPANIES HIRE MORE PEOPLE WITH DISABILITIES WHILE EXPANDING THE GLOBAL CONVERSATION AROUND DIVERSITY, EQUITY, AND INCLUSION

Diversity, equity, and inclusion have become hot topics in corporate America. In the wake of Black Lives Matter and #MeToo movements, and a pandemic that galvanized millions of workers to leave their jobs, companies are scrambling to reimagine their talent strategy and culture to support diverse employees.

But even in this moment of inclusiveness, people with disabilities are being left behind. When companies ask what they can do to improve, they turn to Disability:IN, a global nonprofit organization that helps businesses create tangible opportunities for disability inclusion and equality.

The United Nations adopted the Convention on the Rights of Persons with Disabilities in 2006, the treaty that's a major catalyst in the global disability rights movement. Yet little progress has been made in employment: People with disabilities are twice as likely to be unemployed as those without disabilities.

"Even in today's labor shortage, too few companies are tapping into this highly qualified talent pool," says Jill Houghton, the organization's president and CEO. "Disability inclusion increases labor-force diversity, enhances corporate culture, and appeals to a younger generation that cares about inclusive workplaces and social issues."

A flagship program is the Disability Equity Index, which helps Disability:IN create more understanding for companies in their quest to build a welcoming and inclusive workplace. Partly due to this initiative, *Fast Company* has recognized Disability:IN as one of its Brands That Matter.

HELPING COMPANIES MEASURE PROGRESS

More than one billion people worldwide are disabled. People with disabilities face unique challenges in the workplace. Many are unwilling to admit their disability because of fear that their employer won't support them or that being seen as disabled may hurt their career.

The Disability Equity Index serves as a benchmark for how well companies are performing in recruiting and other initiatives. In industries where there's a labor crunch, the DEI provides valuable data to support the business case for hiring disabled talent. "There's coalescence between what jobseekers want and what people with disabilities have demanded for years—flexible work hours, the ability to work from home, and an inclusive environment that prioritizes worker well-being," Houghton says. "To accelerate the economic recovery, the workforce needs to include people with disabilities."

Disability:IN counts blue-chip CEOs as supporters for its #AreYouIn campaign. And the organization is leading an ESG initiative to ensure new board diversity and human capital management metrics include people with disabilities. To date, more than 30 institutional investors have called on companies in their portfolio to take actions to improve disability inclusion.

Inclusion Works, Disability:IN's consulting arm, has helped 80 companies hire more than 140,000 people with disabilities and partners on DEI programs such as Dell Technologies' autism-at-work hiring blueprint and Facebook's fireside chats with candidates with disabilities. For Google, a self-ID initiative led to a sharp increase in the number of employees who disclosed their disabilities. Meanwhile, a joint project with Accenture found that companies that championed disability inclusion had higher revenues, net income and profit margins.

Photography: Disability:IN

"We're laser focused on highlighting disability as the missing piece in the global conversation on inclusion," Houghton says. "We meet companies where they are and identify the concrete actions they can take to evolve their enterprise and attract the next generation of diverse workers. All they have to do is say that they want in."

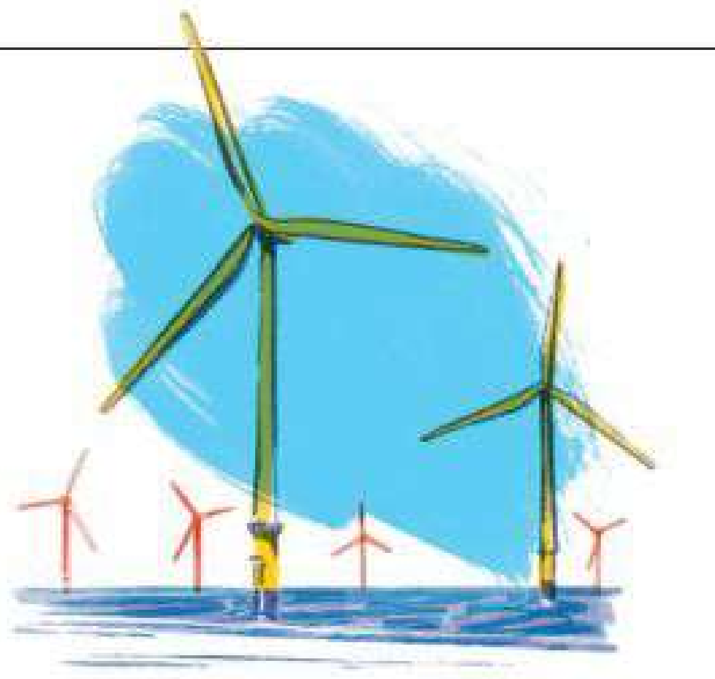
Visit Disabilityin.org to learn more and register for the 2022 Disability Equality Index.

CREATED BY FASTCO WORKS CONTENT STUDIO AND COMMISSIONED BY Disability:IN

PLANE SNACKS

“I take chai spice chocolate infused with reishi medicinal mushroom when I fly. They help manage stress and boost my mood.”

—Lou Sager, founder and CEO, The Alchemist’s Kitchen and the Elixir Bar



DIGITAL ASSISTANT

Carbon Count

“When I travel, I offset my carbon emissions by supporting projects like a biogas program in Kenya or a wind farm in Indonesia. The website Gold Standard lets you do that.”
—Indré Rockefeller, founder, Paravel

THE SPLURGE

Slip Stream

Teva’s Ember Mocs *(from $75, teva.com)* are the perfect shoes for air travel, striking a balance between sneaker and slipper. The grippy sole and foam midsole give the shoes structure and durability, while the sleeping-bag-like upper (with its soft collapsible heel) keeps your feet cozy.

BOOK LIST

What I’m Reading

Satya Nadella, CEO, Microsoft

01

Utopia or Oblivion: The Prospects for Humanity

R. BUCKMINSTER FULLER

Fuller shows us how design science helps us do more with less. [It] remains a well-argued statement about our future.

02

The Alignment Problem: Machine Learning and Human Values

BRIAN CHRISTIAN

Christian looks at one of tech’s most pressing questions: How do we teach machines, and what should we teach them?

03

The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies

SCOTT E. PAGE

Page defines diversity in terms of differences in how we understand and go about improving the world.

04

The Power of Creative Destruction

PHILIPPE AGHION, CÉLINE ANTONIN, AND SIMON BUNEL

It argues that socioeconomic problems won’t be fixed by abolishing capitalism, but by inventing a better capitalism.

Holly Wales (Plane Snacks, Digital Assistant); Yann Legendre (Nadella)

7 Ways to Help Generate Income in Retirement

Millions Have Requested

Fisher Investments' Retirement Guides!

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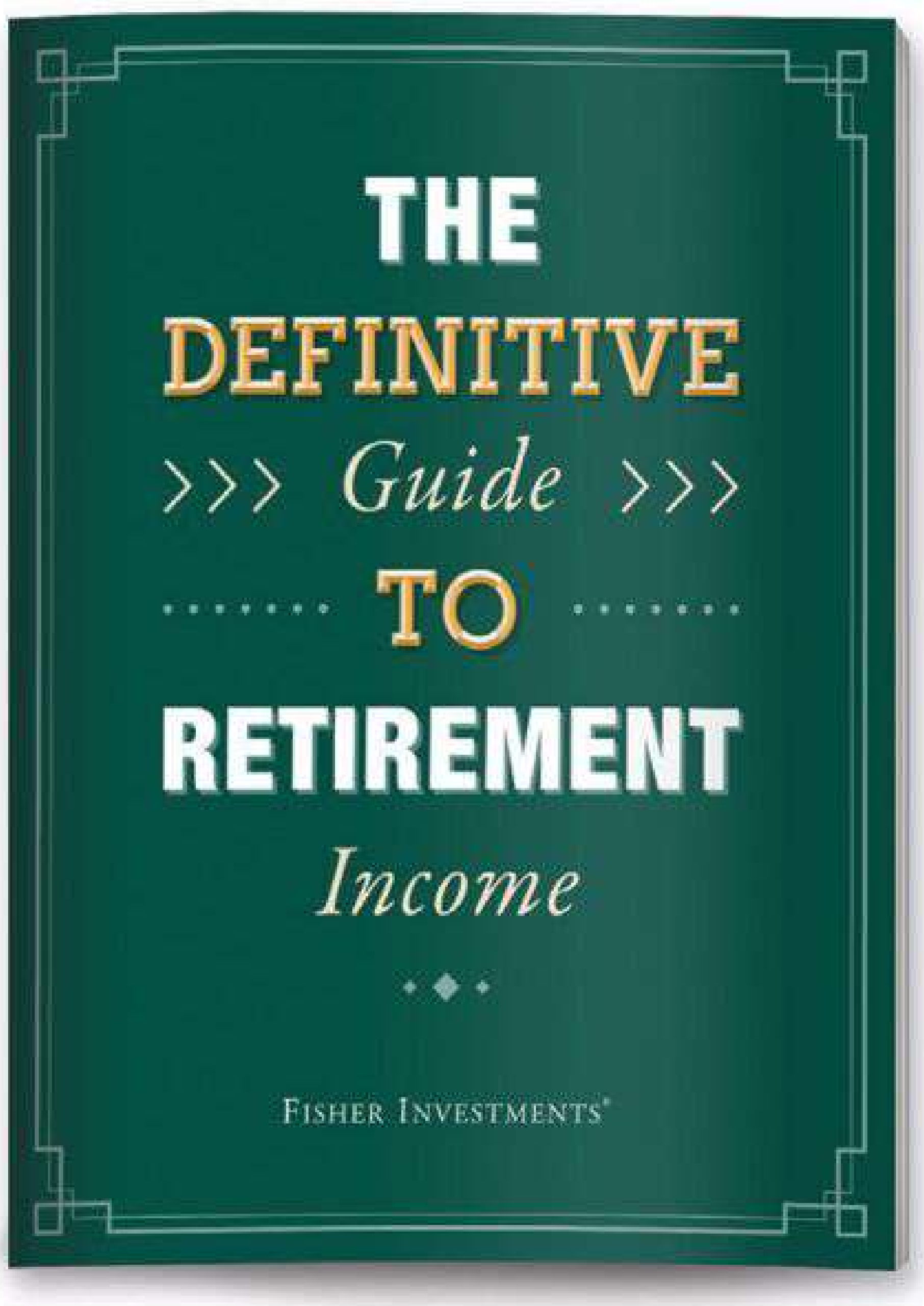
Deciding how to generate income in retirement is one of the most stressful, complicated and confusing aspects of retirement life. Even if you have accumulated a large nest egg, making the wrong income moves could put your entire retirement at risk. That's why we urge you to call for your copy of *The Definitive Guide to Retirement Income.*

With This Guide You'll Learn Ways to:

Set your retirement goals—from spending every cent to leaving a legacy

Get an estimate for how long you are likely to live, so you can plan your income needs over your retirement years

Generate "homegrown dividends" to save on taxes



Estimate your retirement costs with the included worksheet, factoring in inflation and longevity expectations

Balance Social Security, pensions, retirement savings, real estate and other assets to create a dependable income stream

And many more suggestions and ideas to help you avoid running out of money in retirement!

Our Guide Can Help: Written specifically for those with $500,000 or more in investable assets, what you learn might surprise you and give you peace of mind.

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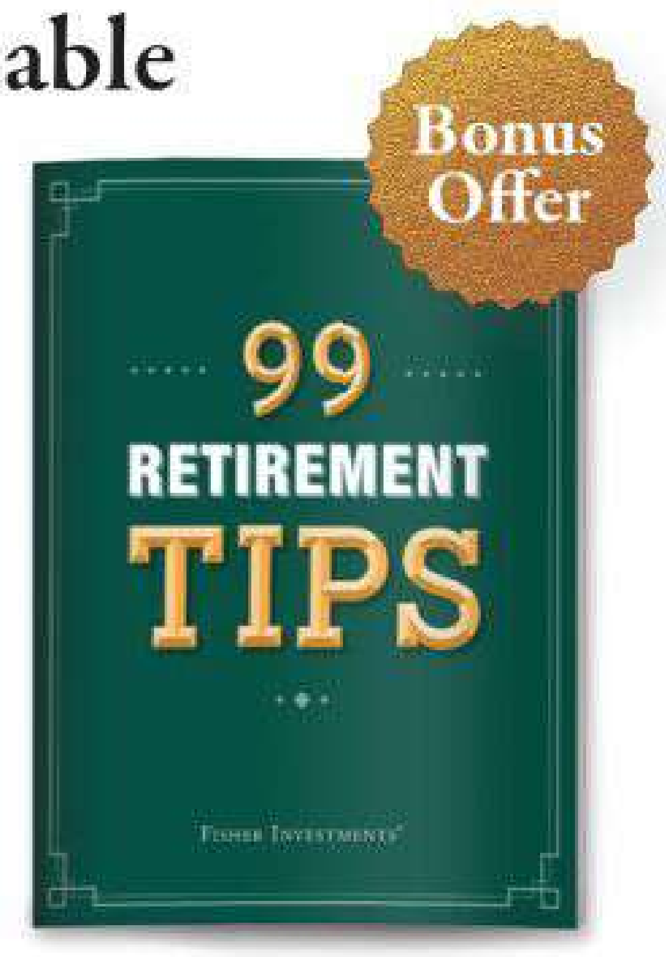
99 Tips to Make Your Retirement More Comfortable

While it's easy to imagine retirement as a time of relaxation, enjoyment and fun, the fact of the matter is that a successful retirement doesn't just happen. It takes thought, planning and action. To help you get ready for retirement or make your retirement even better, we've assembled 99 retirement tips. Importantly, we've gleaned these tips from our clients, people who successfully have navigated or are navigating the transition from work to retirement.



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Fisher Investments®

When 55,000 people find one common voice

AT PURDUE UNIVERSITY, PERSISTENCE AND INNOVATION LEAD TO BRANDING SUCCESS

With thousands of higher education institutions in the United States, how does one set itself apart from the crowd? For Purdue University, in West Lafayette, Ind., one answer lies in delivering a consistent—and unified—message about its brand. "With thousands communicating on our behalf daily, no one can whistle a symphony alone," says Ethan Braden, Purdue's senior vice president of marketing and communications. "We must operate like an orchestra."

Indeed, over the past three years, Braden and his colleagues have worked to bring the university's 55,000 students, faculty, and staff into alignment about the school's essence and unique selling points. Those attributes include an ambitious, decade-long tuition freeze that's bucked the trend of ever-higher college costs, and innovative initiatives such as Purdue's Data Mine, which partners with Cummins, Sandia National Laboratories, and 50 other organizations to improve access and opportunities for students. "Evolving our brand was a component of building a first-class marketing engine that inspires and showcases our incredible product, stories, and people," Braden says.

It's this sustained commitment towards providing the most valuable education possible that helped Purdue earn a spot on *Fast Company*'s 2021 list of Brands That Matter. Braden is confident that initiatives like these will attract the next generation of students, faculty, and partnerships that will expand career, research, and economic development opportunities.

BUILDING A CAMPUS-WIDE CULTURE

Purdue's brand refresh focused on three key questions: Who are we? What do we stand for? And why should people care? Throughout 2019, the university conducted intensive market research, studying students, families, alumni, faculty, and others to understand the attributes—from value and academic excellence to innovation and career opportunities—that truly mattered both to the Purdue community and society at large.

Those efforts paid dividends when the COVID-19 pandemic began in 2020. "It gave us a playbook to continue to show the world who we are and the persistent innovation we stand for, even in the most uncertain of times," Braden says. The university launched its Protect Purdue initiative in May 2020, aimed at keeping the campus safe from the pandemic while returning its students and faculty to classrooms in the fall. It included a broad communications campaign emphasizing the importance of social distancing and other healthy behaviors. It also involved creating a 200-student Protect Purdue ambassador program and a COVID-19 clinical response center for testing, isolation/quarantine, contact tracing, and vaccination. "We wanted to create a community-wide mindset and culture whereby all Boilermakers felt an obligation to protect each other and Purdue from COVID-19," Braden says.

PURDUE UNIVERSITY

GIANT LEAPS, NOT GIANT DEBT

With tuition rising every year at most colleges and universities, Purdue is an anomaly in higher education. President Mitch Daniels' commitment to keeping tuition at the academic year 2012-2013 level has allowed nearly 60% of its students to graduate debt-free.

Braden says Purdue's effort to keep a lid on costs is a key part of its brand, signaling the university's commitment to providing a world-class education, affordably and accessibly. The administration has accomplished that feat not by cutting the quality of its offerings, but by being strategic about how and where it spends money. "More students than ever are choosing to come to Purdue University." Braden notes. "Having the largest freshman class and the largest enrollment ever this year and growing nearly 20% in the past five years, I think that speaks to the belief that our resources and our priorities are aimed at areas that matter."

PERSISTENCE MATTERS

WE LEAVE NOTHING UNTRIED,
NOTHING UNTESTED
AND NOTHING UNDONE.

Whether landing the first man on the moon, freezing tuition for a decade or opening our own high schools, we’re **persistently pursuing the next giant leap.**

PURDUE
UNIVERSITY®

FAST COMPANY
BRANDS THAT MATTER 2021

EA/EOU

prime
free
fast,
amazon

AMAZON

It doesn't matter that Jeff Bezos has stepped down: No industry is safe from the company's relentless ambition.

PAGE 042

UNPACKED

A complete guide to Amazon's staggeringly large and ever-mutating domain, most of which you can't even see.

Photographs by Elizabeth Renstrom

A

Alpha

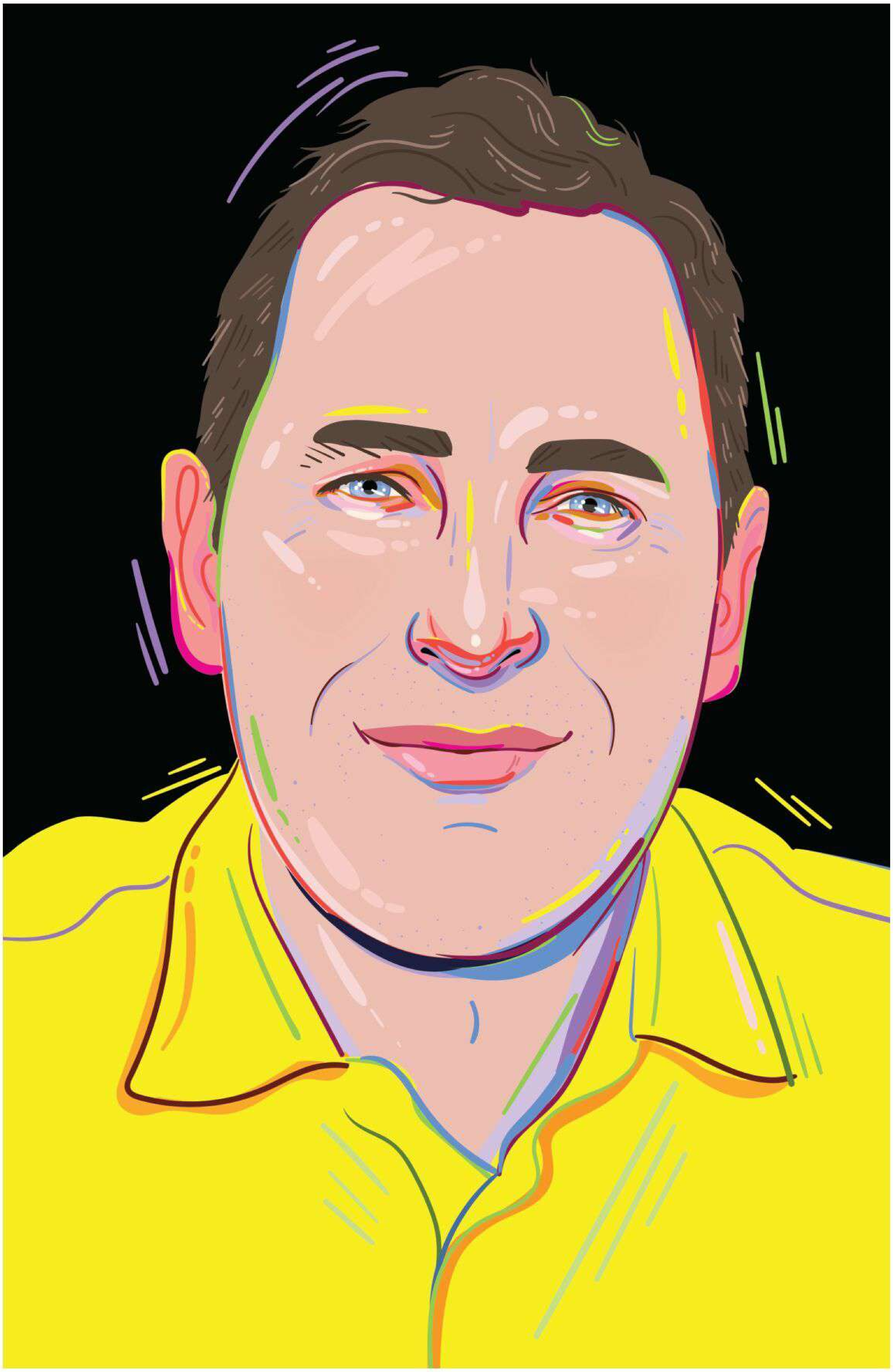
(\'al-fə\)

Meet Amazon's CEO, Andy Jassy

He controls a company that touches our lives in infinite ways. It's probably a good idea to know who he is.

How old is he? Jassy is 53.
Where is he from? He grew up in Scarsdale, an affluent suburb of New York City. His father was a corporate lawyer at Dewey Ballantine; his mother was a trustee for a youth theater program. His older sister, Kathy Savitt, once worked at Amazon, and is now the president and chief commercial officer of Boom Supersonic, an aviation startup.
Where did he go to school? After graduating from the public Scarsdale High School, where he played varsity soccer and tennis, he went to Harvard, where he majored in government and was the advertising manager for the *Harvard Crimson*. He received an MBA from Harvard as well.
What was his first job? Amazon! At least, that was his first after business school. "I took my last final exam at HBS [on] the first Friday of May, in 1997, and I started at Amazon the next Monday. No, I didn't know what my job was going to be, or what my title was going to be. It was super important to the Amazon people that we come that Monday," Jassy said in a Harvard Business School podcast. He became a marketing manager.
What's he done so far at Amazon? A lot. For one thing, he argued that the company's first expansion beyond books should be into music sales. In 2002, he became the first in a long line of

(*Continued on page 91*)



PORTRAIT ILLUSTRATIONS BY MALLORY HEYER

B

Brands

(\'brandz\)

An emerging army of aggregators, working almost entirely on Amazon's platform, are betting that they can get you to buy products from brands you've never heard of before.

By Ainsley Harris

Catherine Seifert just wanted to solve the problem of where to put her purse in her car. Before she knew it, she had a patented device and a multimillion-dollar business selling her mesh slings (designed to bridge the vertical space between seat backs) on Amazon. Seifert's brand, Car Caché, isn't a household name, but its signature product features professional photos, Amazon's "#1 Best Seller" sticker, a reasonable price tag ($19.99), and 7,000 ratings—exactly the formula that persuades shoppers on the site to click "Buy now."

Other shoppers began spotting the Car Caché product listing late last year and wanted to buy now, too—the whole business, that is, and its $18,000 per day in sales.

Thrasio, a three-year-old company that has raised $1.7 billion in debt and equity to buy brands sold exclusively on Amazon, was the first to reach out. In its cold email to Seifert, a former business development executive who had been selling on Amazon since 2014, Thrasio congratulated her on her success ("bravo!") and wrote that her business "has the key ingredients of what we look for: great product and happy customers."

Seifert, suspicious, marked the email as spam. But soon, more than a dozen of these so-called aggregators began contacting her. Curious, she dug through her spam folder, replied to Thrasio, and then opened negotiations with the rest. An executive at Softbank-backed Perch, which has raised more than $900 million in less than two years, courted her on a Zoom call. Another firm touted its prowess by trotting out staff who had experience working with organizational guru Marie Kondo. Seifert was impressed.

But Thrasio prevailed. "The money up front was the same," Seifert says. The Boston-based Thrasio, however, offered her what she calls an "astronomical" payout for future growth. By selling her business, Seifert no longer has to worry about search rankings, warehouse costs, negative reviews, or counterfeiters—which is precisely what makes cashing out so appealing. (A promotional video on Thrasio's website features the founder of another brand the company acquired relaxing in his new Corvette, new speedboat, and new Florida digs.) Thrasio, meanwhile, now owns 200 brands and is on track to generate over $1 billion in revenue this year; it touts itself as the fastest U.S. company to reach unicorn status.

In the two decades since Amazon opened its platform to third-party sellers, this marketplace unit, as the division is called, has surpassed Amazon's own physical product sales. Last year, it generated an estimated $300 billion in sales, according to research firm Marketplace Pulse. During the pandemic, Amazon's own retail sales grew, but its third-party merchants grew even faster. Competitors such as Walmart and Target, not surprisingly, have recently opened their own platforms to outside sellers.

While Amazon spent marketplace's early years wooing prominent retailers onto the platform, a steady stream of mom-and-pop brands were setting up storefronts there. Thanks to the ubiquity of Prime memberships and the ease of Amazon's fulfillment services, which include everything from storing, shipping, tracking, and customer service, this stream became an ocean. A few years ago, it caught the attention of deep-pocketed investors, who had initially been wary of backing merchants whose fates were deeply intertwined with the whims and algorithms of an opaque e-commerce giant. They saw strength in numbers: If an aggregator could acquire the best of these merchants across different categories—that is, ones making over $1 million a year, with profit margins greater than 20% and a customer rating of at least four stars—it could create a new kind of consumer packaged goods company, a sprawling, internet-era Unilever comprising a thousand niche brands, built off the back of a retail juggernaut.

There are now more than 70 aggregators. Collectively, they have raised nearly $9 billion, which they've used to acquire hundreds of Amazon-native brands and thousands of products. To compete, buyers "need $100 million [in capital], table stakes," says Fortia Group cofounder David Hyland, who brokers deals for sellers. Competition for sellers with the greatest growth potential, as Seifert discovered, can be fierce. Because most of these merchants rely on Amazon for fulfillment, aggregators are essentially buying the login credentials for a seller's account, along with their inventory and intellectual property. Though Thrasio and Seifert declined to offer specifics on their deal, bids for a well-run Amazon brand typically start at more than three times adjusted annual revenue, meaning that sellers of Car Caché's size are cashing eight-figure checks.

E-commerce aggregation is still in its

infancy, but it marks a turning point for online retail. On Amazon, it portends a future in which larger-scale entities have elbowed out the little guys, creating a marketplace that is more professional but perhaps less vibrant. It also points the way forward in brand marketing; whereas companies like Procter & Gamble once built brands via television advertising and prominent in-store displays, these modern conglomerates establish theirs by mastering search engine optimization (SEO), targeted advertising, and customer reviews. The upside for aggregators with the right portfolios could be enormous, given that e-commerce still comprises barely a fifth of the overall retail landscape.

They face a looming set of hurdles, though. Amazon represents the epitome of transactional commerce, where customers shop with specific intent. To succeed in the near term, aggregators will have to master a game defined by Amazon's search bar and its keyword dark arts—and hope the company doesn't change the rules on them. In the long term, if they want to live outside Amazon, they'll have to turn these more-or-less anonymous brands into household names.

> “AGGREGATORS WILL HAVE TO MASTER A GAME DEFINED BY AMAZON'S SEARCH BAR.”

If Amazon is the everything store, then Thrasio is the everything aggregator. Camping gear, pillows, nail clippers, exercise balls: At first glance, the array of products seems plucked at random from Amazon's retail river.

But Thrasio's cofounders, Josh Silberstein and Carlos Cashman, have a plan. They started the company in 2018, after they got their hands on seller data through an Amazon software provider and quickly noticed a trend. As sellers approached $10 million in revenue, their profit margins would decrease and their sales would plateau. “They'd say, ‘We don't have the ability to manage supply chain, marketing and creative, and new products,’” Silberstein says.

Many small businesses face scaling challenges, but almost no one was focused on providing the Amazon-seller ecosystem with growth capital or exit options. Silberstein and Cashman, serial entrepreneurs, convinced investors to provide them with relatively cheap debt and began targeting sellers who had hit a ceiling. By April 2020, they had strong enough results as a nascent conglomerate that they were able to raise $75 million in Series B funding, along with $35 million in debt. The big numbers surprised other investors, who began looking for more aggregators to back.

According to Thrasio, the company has paid performance earnouts to 94% of the sellers it has acquired. For Silberstein, that track record is evidence of his company's Amazon expertise. “There's probably not a single product in our portfolio where I couldn't sit down right now and rewrite the listing and improve conversions,” he says. Better photos, better keywords, better copy: that's just the basics. “We have four or five obvious strategies,” he explains. “And then there are probably three or four things that we know how (*Continued on page 91*)

Masters of Scale

How Chinese sellers came to dominate Amazon's marketplace

amazon
prime

When Chinese factories, which had operated in obscurity, began burnishing their brands and selling directly to consumers, some six years ago, Amazon executives were ready to help. "We are that vehicle," a former marketplace VP wrote in a 2015 internal memo. At the time, Chinese sellers represented an estimated 15% of Amazon's U.S. marketplace. Today, they represent 40%. The largest, like computer-accessory brand Anker, are worth billions of dollars.

1

LOW PRICES
Chinese Amazon sellers are often manufacturers as well. They charge low prices by cutting out middlemen and operating with razor-thin margins.

2

RAPID PRODUCT DEVELOPMENT
Close proximity to factories allows other Chinese sellers to quickly hop on trends, though critics say this leads to counterfeit products.

3

CONCENTRATION OF INNOVATORS
The majority of China's Amazon sellers are based in Shenzhen. They're actively sharing information and best practices with one another.

Climate Fund

(\'klī-mət\'fənd\)

At 60.64 million metric tons, Amazon's carbon footprint in 2020 was larger than that of some countries. (And that's not even taking into account the footprints of third-party vendors and manufacturers, which grow with every one-click order.) But the company's size means that it can support climate solutions that might otherwise develop more slowly. When Amazon announced two years ago that it planned to reach net-zero carbon by 2040, much of the technology that it needed to hit that goal—such as zero-emission jets—hadn't yet been invented. So the company launched the Climate Pledge Fund, a venture arm that aims to invest at least $2 billion in startups making products that Amazon can use. The fund backs electric vehicle manufacturer Rivian, for example, and Amazon placed an order. "What we do, that no other investor can do, is say, 'Hey, we want to decarbonize our last-mile delivery. And to do that, we're going to buy 100,000 of your trucks,'" says Matt Peterson, who leads the fund. Its growing portfolio (currently nine companies) includes CarbonCure, which injects CO2 into concrete to lower the carbon footprint of construction; ZeroAvia, which is developing zero-emissions airplane engines; and Pachama, which uses AI to verify carbon offsets in forests.

D

Department Stores

(\di-'pärt-mənt\'stōrz)

Shopping on Amazon.com is efficient, but as an overall experience, rather uninspiring. Now, Amazon is reportedly planning to open department-store-style locations in California and Ohio, where people can try on clothes (including Amazon's private-label brands) and play with its electronic gadgets, such as Kindles and Echos—and maybe even discover something new from a third-party seller without the endless scrolling and awkwardly translated product descriptions. Physical locations could also help facilitate returns, which may be what Amazon shoppers crave most.

E

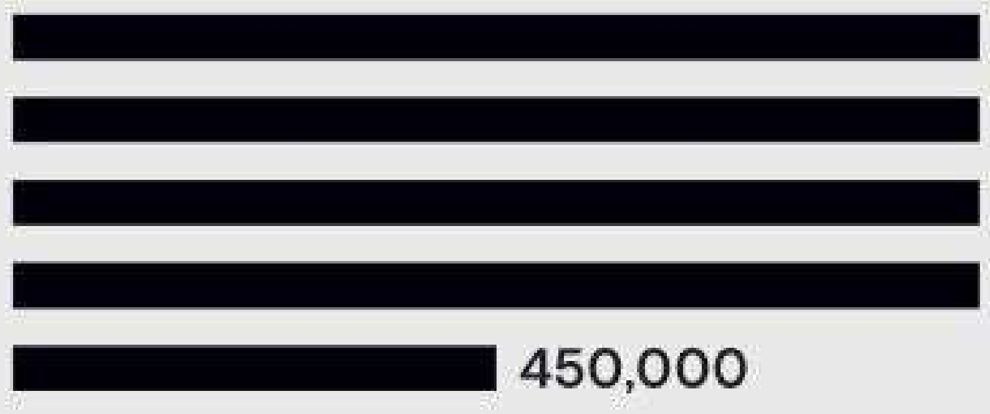
Employer

(\im-'plȯi-ər, em-\)

Amazon is getting close to eclipsing Walmart as the largest private employer in the U.S. That's a lot of power, over a lot of people. Here's a closer look.

1,335,000

Number of full- and part-time Amazon employees globally, excluding contractors and temporary personnel



Number of new employees hired during the pandemic in the U.S.—making Amazon the country's largest job creator

460%

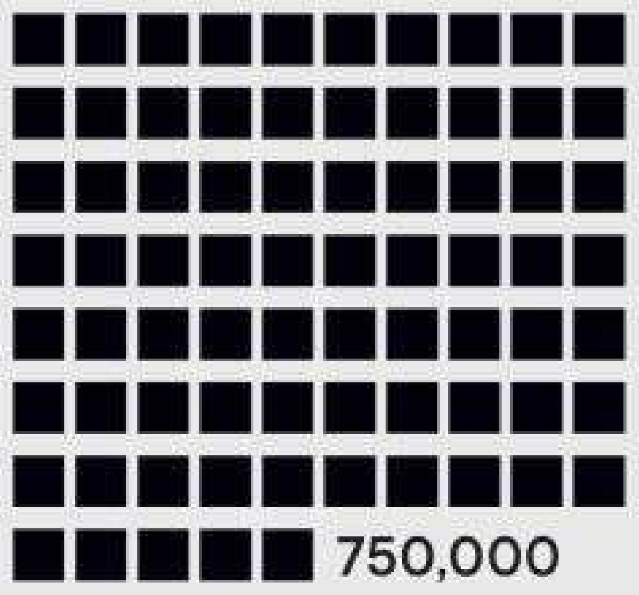
Percent increase during the pandemic of employees who applied to the Amazon Technical Academy, an upskilling program that helps employees become software engineers in nine months

150%

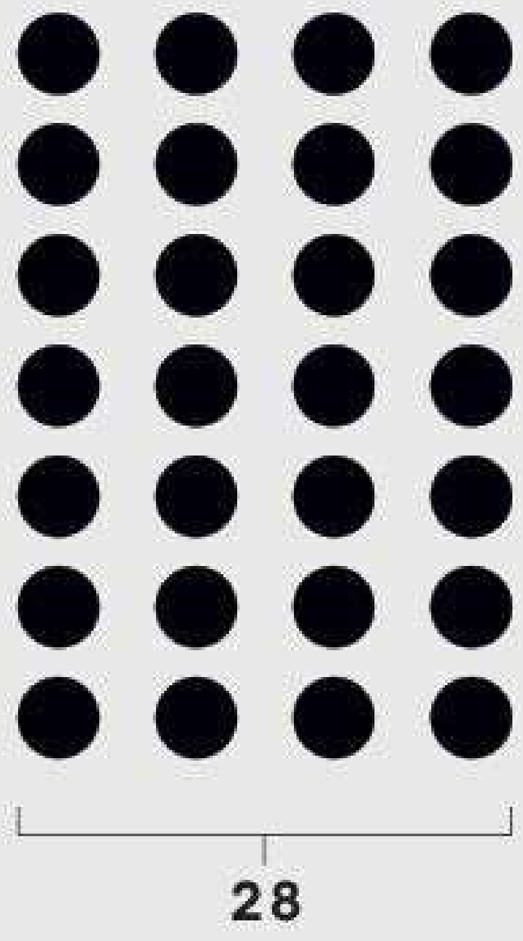
Annual turnover rate of Amazon's hourly associates, reportedly

$18

Amazon's new average starting hourly wage for positions in fulfillment and transportation. (The average wage for UPS drivers is roughly $22 per hour.)



Number of U.S. hourly employees for whom Amazon is offering to pay college tuition, as an employment incentive



Current number of facilities that hire seasonal "CamperForce" employees, who live in their RVs nearby and must be able to work 10-to-12-hour daily shifts, be available for any shift or schedule, and lift up to 49 pounds

$29K

Median annual wage made by an Amazon worker in 2020—less than the median salary in every state in America

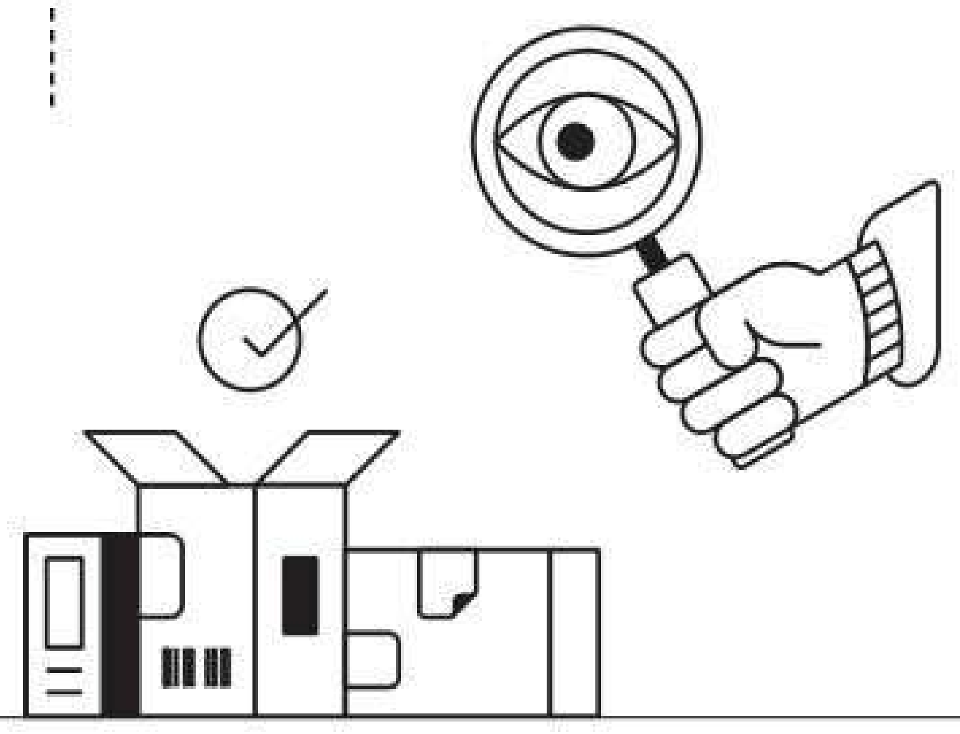
Sources: *The New York Times* (turnover rate); Amazon (all other information)

SPOT ILLUSTRATIONS BY CHRIS VAN ROOYEN

F

Fakes

(\'fāks\)

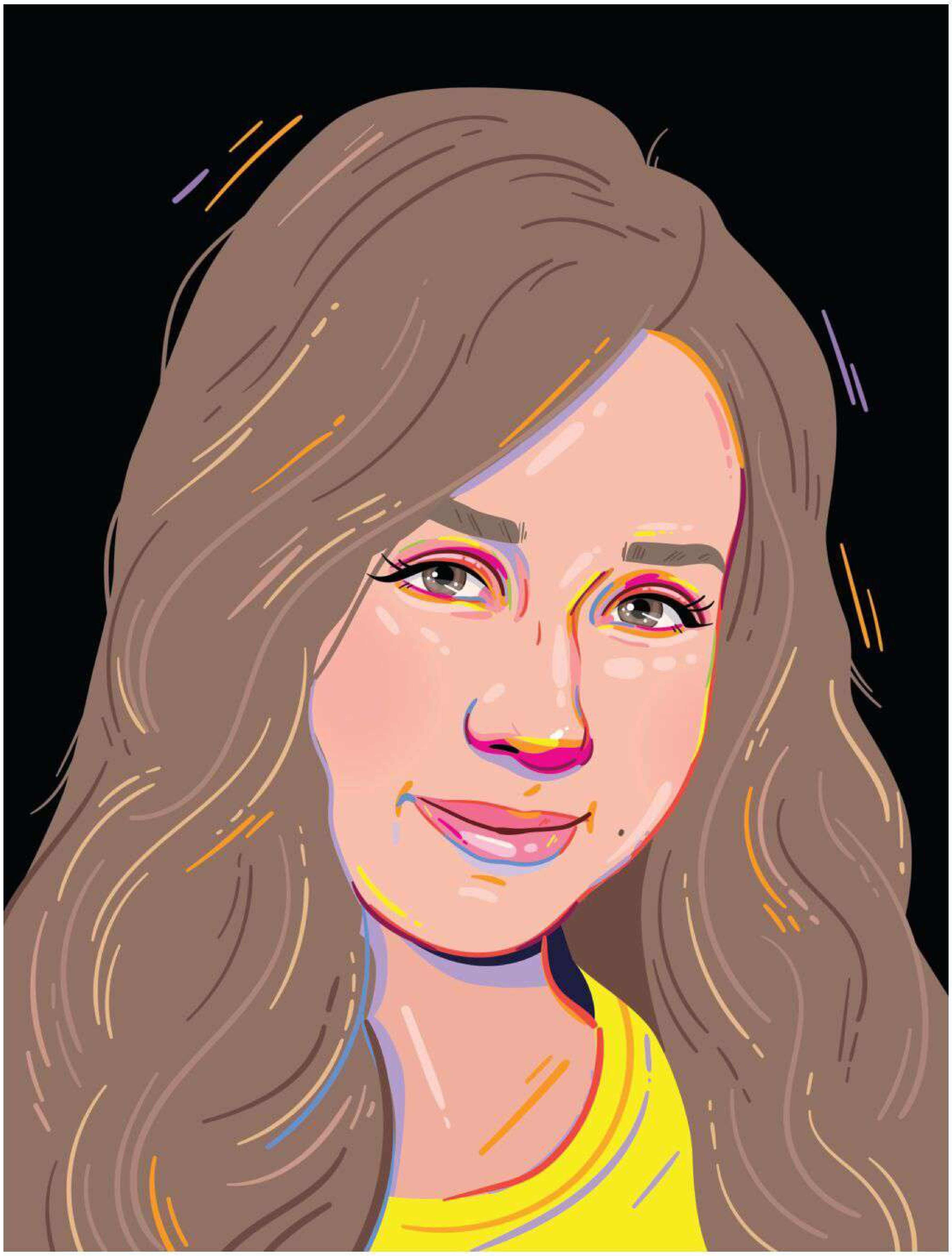


As Amazon grows, so does its battle against fraudsters. Facing pressure from shoppers, brands, and Congress, and following instances in which customers died or were injured by products that didn't meet government safety standards, the company destroyed more than 2 million counterfeit products in 2020 and blocked more than 10 billion suspect listings. Here's how Amazon is fighting fakes.

1. Verified sellers
Amazon uses live video chat to verify sellers' identities. Last year, the company blocked more than 6 million potentially fake applications.

2. Brand registration
The platform allows sellers to register their logos and IPs. Amazon plugs the registry into its AI tools to detect fakes.

3. Legal action
Alongside brand partners such as GoPro and Yeti, Amazon has been filing lawsuits against counterfeiters.



G

Gaming

(\'gā-miŋ\)

By Mark Wilson

You can't call yourself a gamer today if you aren't on the Amazon-owned Twitch. The 10-year-old platform, which features live feeds of hosts playing games for hours on end while enabling real-time chats with fans, has created a whole new class of talent: the streamer. Sixteen percent of all U.S. adults follow streamers on Twitch, according to Forrester. As Amazon notes, that's 2.5 million people at any given moment. And the average expert streamer earns an estimated $3,000 to $6,000 per month in Twitch affiliate revenue alone, according to an analysis from the Business of Apps. With 8 million followers, Imane Anys—aka Pokimane—is the seventh most popular streamer on Twitch today. Bubbly yet voraciously competitive, the L.A.-based Anys says she earns seven figures per year playing *League of Legends*, *Fortnite*, and *Valorant*. But she also uses her massive platform to advocate for mental health—particularly when it comes to the unique challenges of streaming for hours on end daily. And she's been outspoken about the harassment, often sexualized, that female streamers receive on both Twitch and the games they play. Recently, Anys has begun expanding beyond gaming: She has made sushi on Twitch, offers IRL

(*Continued on page 91*)

H

Hair

(\'her\)

In April, Amazon launched its most intriguing—and puzzling—brick-and-mortar operation: a two-story, 1,500-square-foot full-service hair salon in London's tony Spitalfields Market. The Amazon Salon uses mirrors embedded with AR technology to let customers try on new colors and styles (pandemic bangs, anyone?), while allowing them to thumb through magazines on—what else?—a Fire tablet. Amazon launched an online wholesale storefront for beauty professionals in 2019, and sees the salon as, er, a natural extension.

I

Income

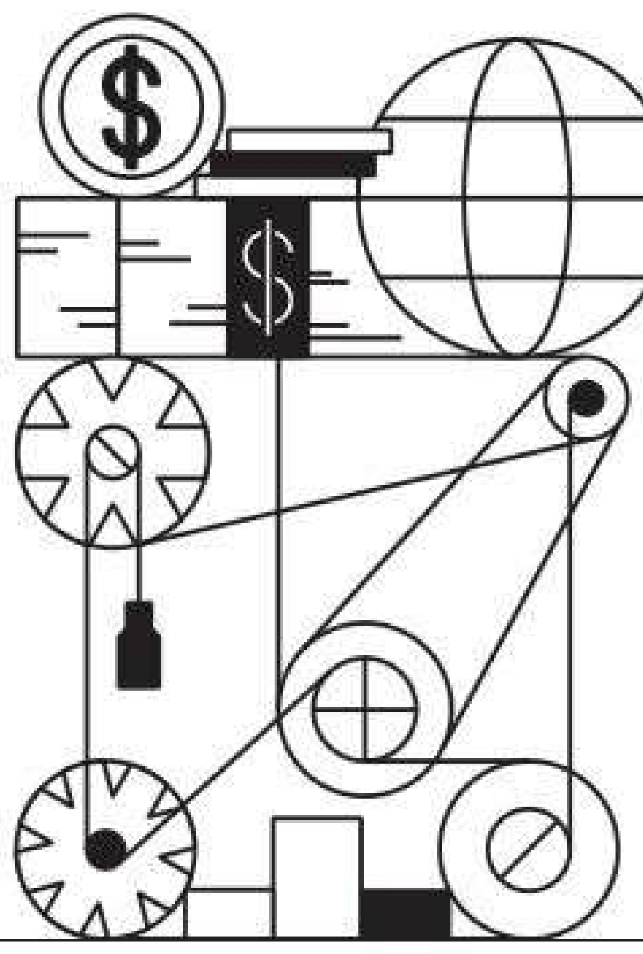
(\'in-kəm\)

AWS is the engine that keeps Amazon—and countless other companies—running.

By Harry McCracken

In 2005, a new Amazon recruit named Adam Selipsky joined a small team working on a project that was seemingly far afield from the company's core business of selling products such as books, laptops, and baby supplies over the internet. Amazon Web Services, as it was known, would give any business pay-as-you-go access to the same robust, cost-efficient computing infrastructure Amazon had built for its own purposes. "In the very early days, we used to walk around inside of Amazon evangelizing that this could be the next billion-dollar business," Selipsky recalls.

That turned out to be a rare instance of anyone at Amazon thinking too small. After a decade and a half of remarkable growth, AWS has a current run rate of $59 billion a year. In the second quarter of 2021, revenue increased by a booming 37%. When AWS CEO Andy Jassy became Amazon's CEO, in July, Selipsky—who'd left Amazon in 2016 to run visualization software maker Tableau—took Jassy's old job.



If all Selipsky did was keep AWS's formidable flywheel spinning, that would probably satisfy Wall Street. That, of course, would not be the Amazon way. Along with preserving AWS's operational momentum, "part of my job is to make sure that we are restless and dissatisfied," he says.

Much is at stake. AWS has long been Amazon's most profitable arm, accounting for 54%

amazon
prime
Z11
video

of operating income in the second quarter of 2021. Those dependable returns aren't just about making investors happy: Without the bankroll provided by AWS, Amazon wouldn't be able to uphold the values that Jeff Bezos made central to the company's identity—invention, long-term planning, the defying of conventional wisdom—at least not on as grand a scale in so many different fields. AWS's

(*Continued on page 92*)

J

Just Walk Out

(\ˈjest\ˈwȯk\ˈau̇t)

The company that upended retail by bringing it online is now poised to transform physical stores. Amazon's cashierless Just Walk Out technology, which uses overhead cameras, weight sensors, and AI to detect what shoppers are selecting and automatically check them out, is currently deployed in at least 28 Amazon Go and Amazon Fresh stores, and even a few Whole Foods outposts. But Amazon now also licenses the tech to outside retailers. Five have currently signed on, including fashion boutique Fred Segal, which uses Just Walk Out in its new Las Vegas food market, and airport staple Hudson, which began rolling it out last spring.

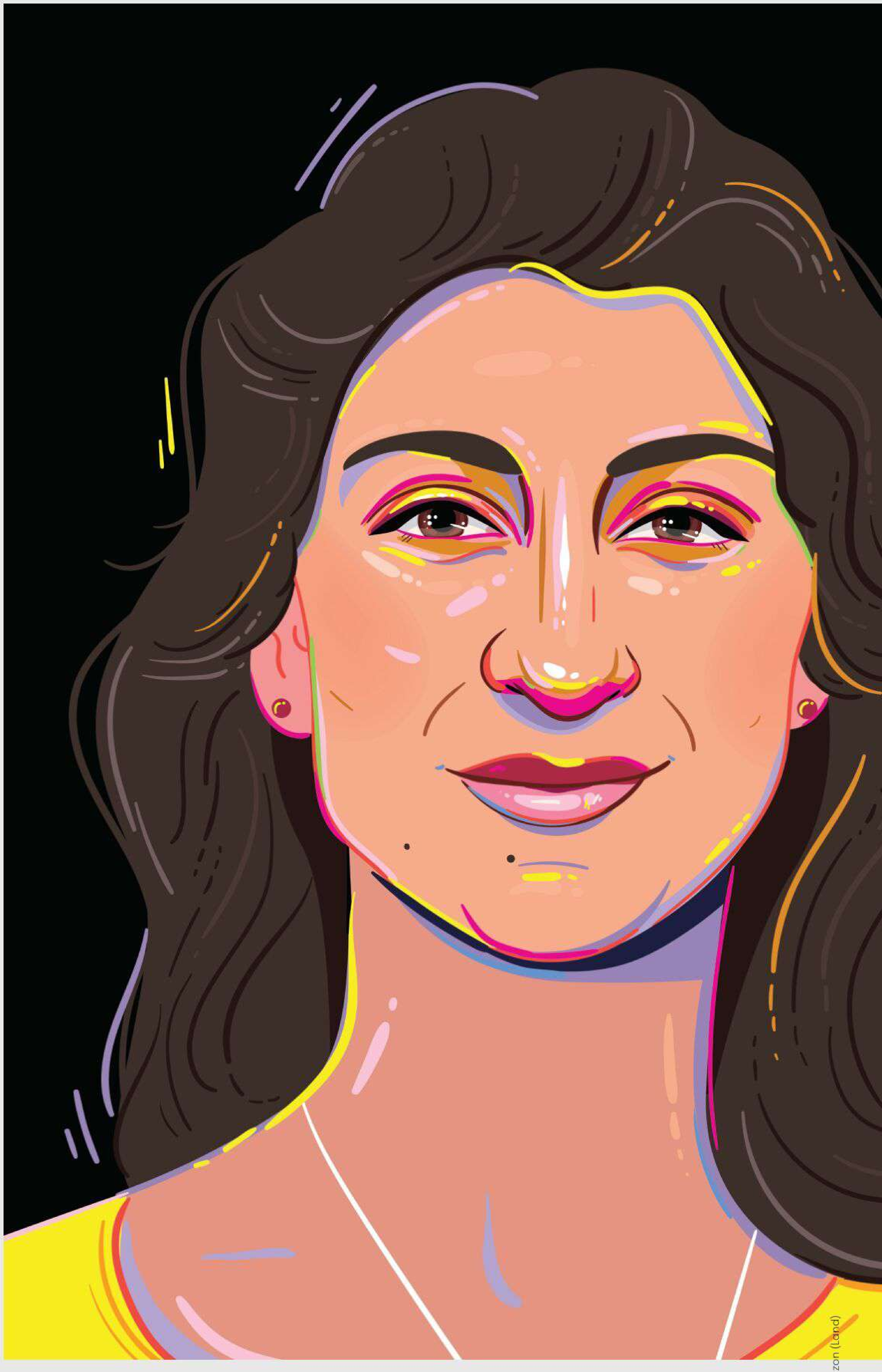
K

Khan!

(\ˈkän\)

Amazon's biggest critic is now the top cop on the block.

By Christopher Zara



For most of the past half-century, antitrust enforcement tended to be narrowly focused—on your pocketbook. Companies could get as big and powerful as they wanted and still escape the hammer of regulators, as long as they didn't raise prices for consumers. Amazon, however, has consistently delivered lower prices for consumers, and yet it still raises concerns among antitrust experts.

You see the paradox? Legal scholar Lina Khan did. In a 2017 *Yale Law Journal* article that went viral, she made a clear-eyed argument for why the current price-obsessed framework of antitrust law can't adequately address the harms of today's tech giants. She took Amazon to task on two fronts: "predatory pricing" (selling items at a loss to undercut competitors) and voraciously expanding into new areas of business (such as logistics or AWS, through which rivals come to rely on Amazon-owned infrastructure). "Companies may exploit their market power in a host of competition-distorting ways that do not directly lead to short-term price and output effects," Khan wrote in the article, called, appropriately, "Amazon's Antitrust Paradox."

Four years later, Khan (who declined to comment for this article) has been

(*Continued on page 92*)

Source: Amazon (Land)

L

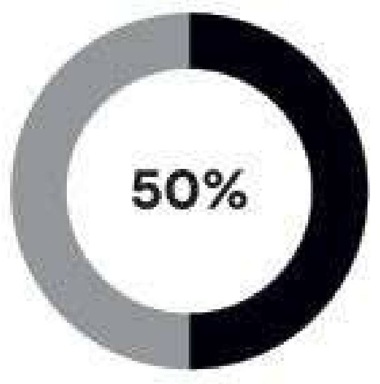
Land

(\'land\)

For a digital company, Amazon has an awfully large physical footprint.

454M

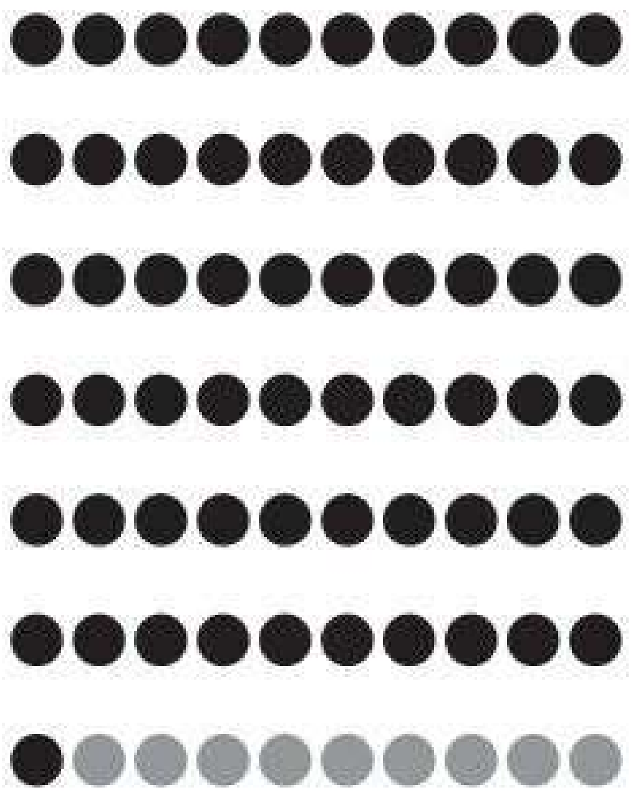
Total leased square footage in 2020. This equals 16 square miles, or a quarter of the size of Washington, D.C.



Amount by which Amazon increased its fulfillment and logistics square footage in 2020

21M

Total owned square footage in 2020; roughly 450 acres, or 341 football fields



611

Number of physical Amazon stores in North America, including Whole Foods

M

Medical

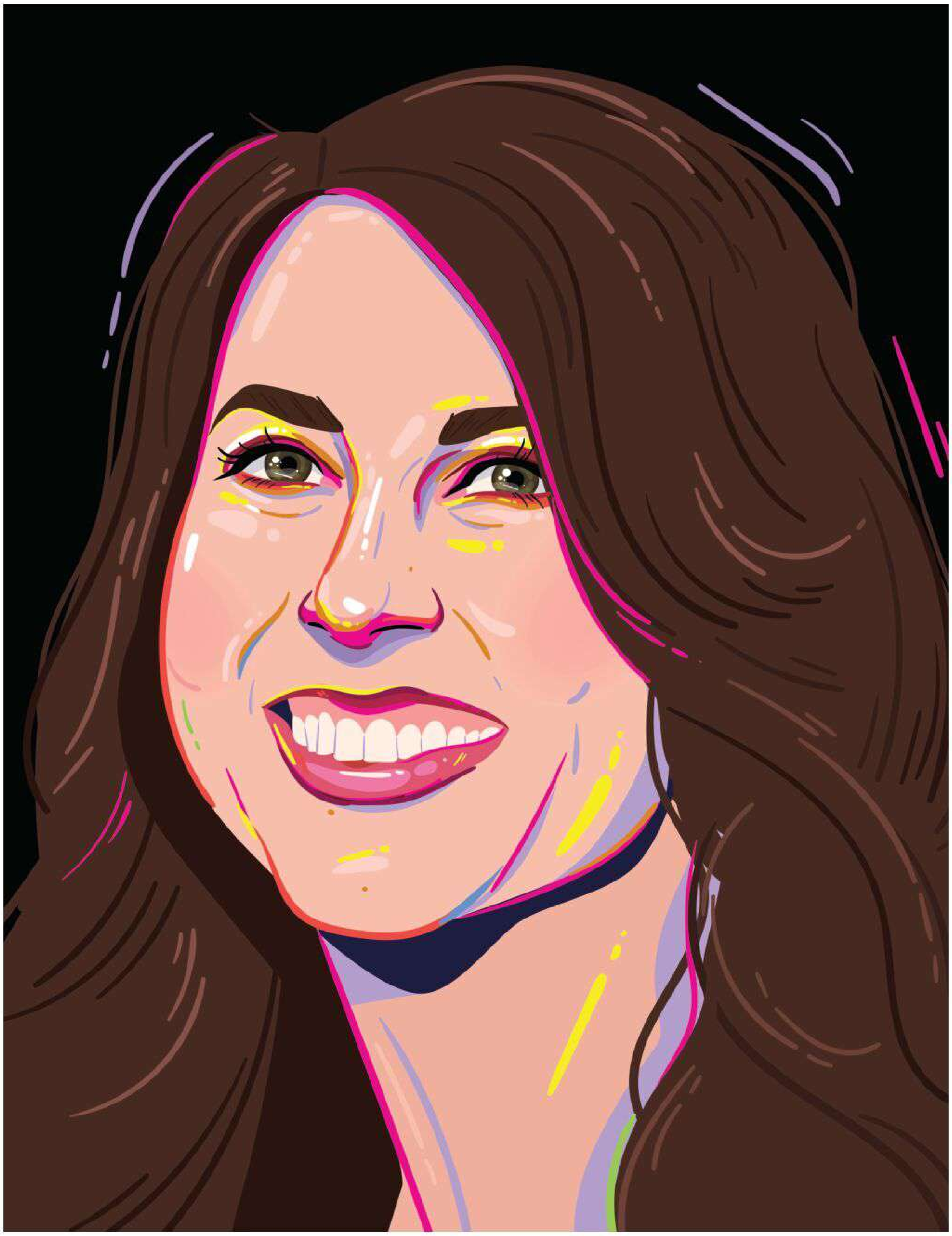
(\'me-di-kəl\)

Two years ago, Amazon introduced a primary care product for its Seattle-based workers called Amazon Care, which includes video appointments, prescription drug delivery, and even home visits. Last summer, it began rolling out Amazon Care's telehealth services to employees in all 50 states—and outside companies as well. But that's just the tip of Amazon's medical ambitions. Amazon Web Services already supports the back end for hospital networks, including Children's Health Orange County and the U.K.'s National Health Service. The next big opportunity, according to Moody's senior retail analyst Charlie O'Shea, will be layering on products that help hospitals become more efficient and effective. Amazon currently offers an array of services, from medical transcription to algorithms for managing patient health outcomes. Now, it's working with hospitals to build exactly what they want. The Pittsburgh Health Data Alliance, for example, uses Amazon's machine learning to better understand tumor growth in breast cancer. These relationships could eventually blossom into an Amazon Care healthcare network. "It's really early innings here," says O'Shea.

N

New New Money

(\'nü\nü\'mə-nē)

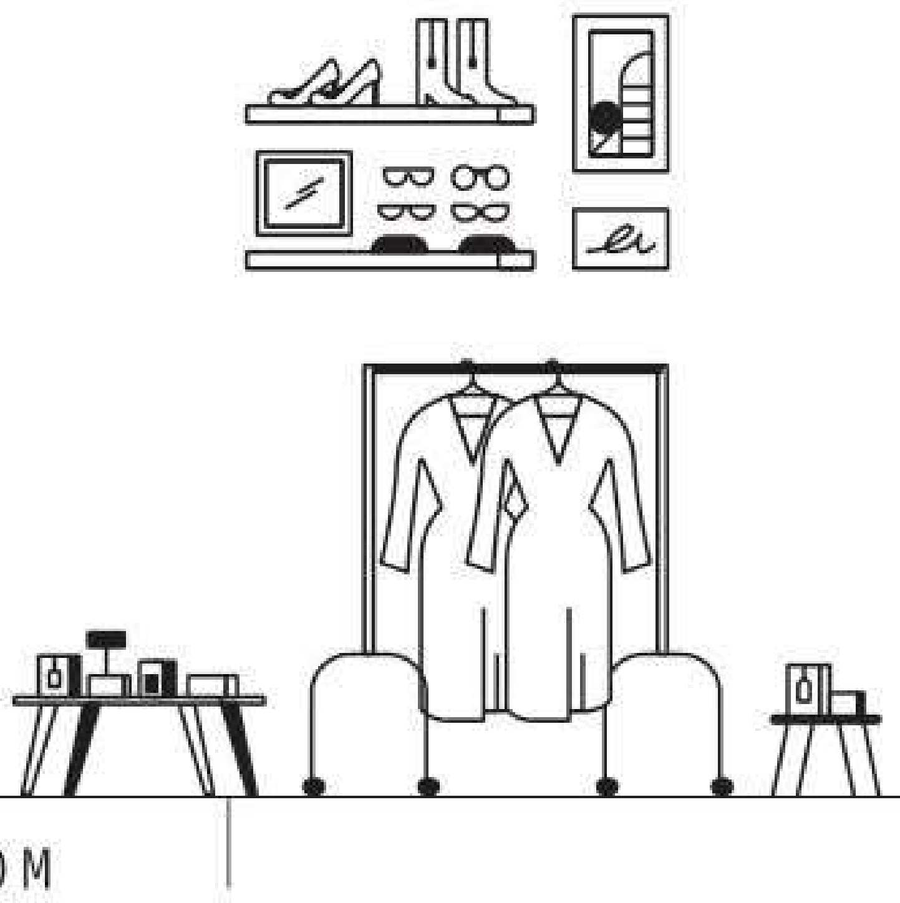


Since her 2019 divorce from Jeff Bezos, MacKenzie Scott has wasted no time in establishing herself as the most interesting and prolific philanthropist in a generation. Her 4% stake in Amazon is now estimated to be worth $60 billion, and she has written no-strings-attached checks worth over $8 billion to hundreds of nonprofits. She also signed the Giving Pledge, indicating that she has no intention of slowing the pace. Scott's peers have largely funded sprawling eponymous institutions (Bill and Melinda Gates), mixed gifts and for-profit investments (Laurene Powell Jobs; Mark Zuckerberg and Priscilla Chan), and pursued literal moonshots (Elon Musk, and, of course, Scott's ex). Scott has charted a different path, one that she calls "seeding by ceding." As she wrote in a Medium post explaining her gifts, "I want to de-emphasize privileged voices and cede focus to others." Her goal, she says, is to spotlight organizations that have been "historically underfunded and overlooked." (Critics say more transparency would be nice.) Examples include a community college in the Bronx and a mentorship program for mothers with HIV. For the philanthropic world, Scott's example is a wake-up call. Giving that reinforces existing power structures isn't really giving at all.

O

Oscar de la Renta

(\'ä-skər 'de 'la 'ren-tə\)



In September 2020, when Amazon unveiled its latest attempt to crack into fashion—Luxury Stores, a separate "site within a site" for high-end brands—its first and only partner was Oscar de la Renta. Other labels have since joined, but none from conglomerates like LVMH or Kering, which remain wary of Amazon. The retailer also has to convince customers who turn to Amazon for inexpensive household items that it can be a place for browsing and discovering luxury goods as well.

P

Patents

(\'pat-ents\)

Amazon knows how to lock in its IP. Over the past decade, its annual patent grants have grown more than 2,000%, topping 2,300 last year. Here, three intriguing new ones.

1. Automated detection and extraction of nutrition information for food products
A way to seamlessly digitize—and make searchable—the information that typically appears on food labels.

2. Ring wing aerial vehicle
A next-level delivery drone with circular wings that allow it to transfer from horizontal to vertical movement with ease. Typically, drones are built for either urgency or efficiency. This design would offer both.

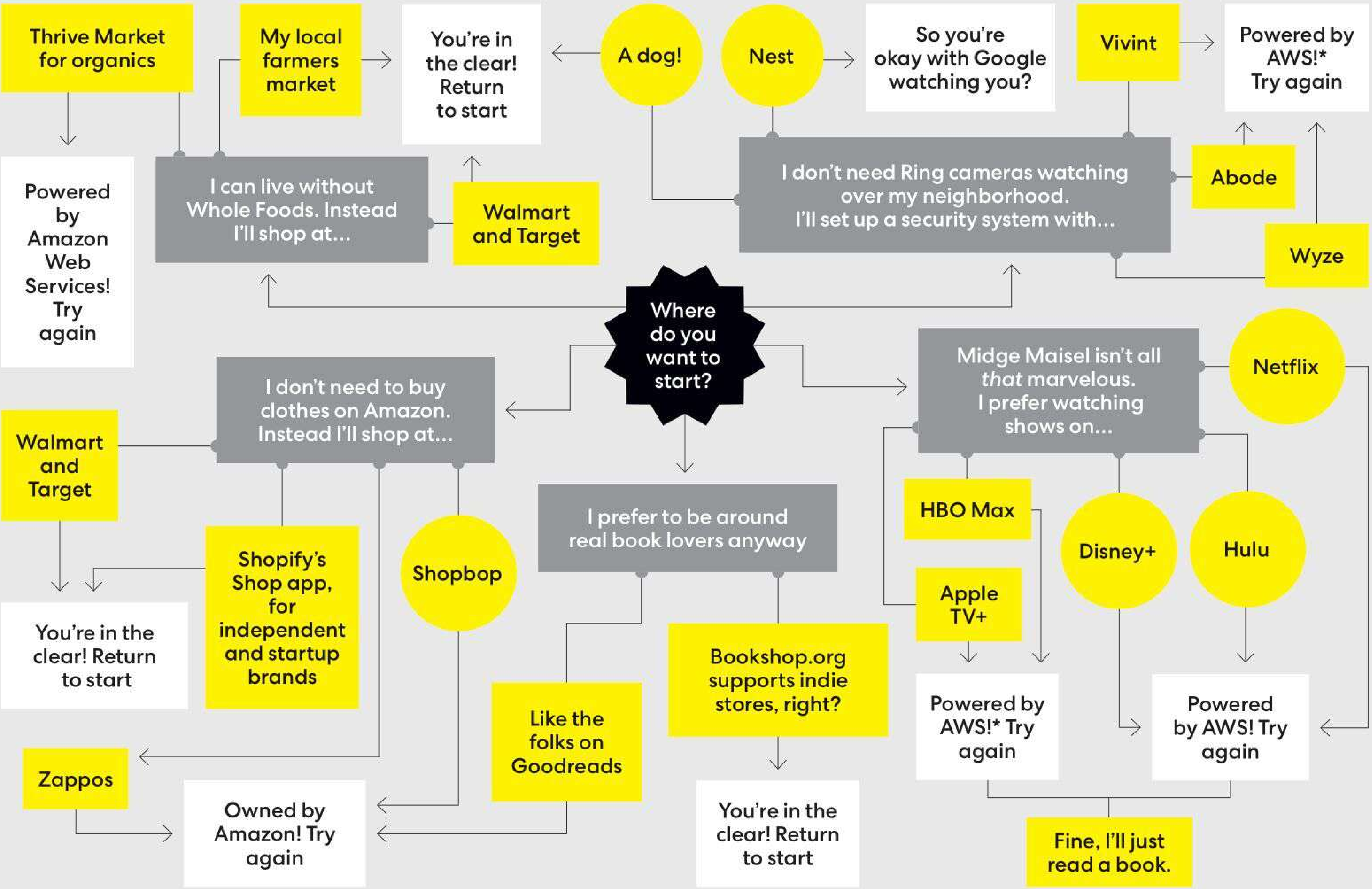
3. Parcel theft deterrence for A/V recording and communication devices
Tech that uses your home security camera to recognize when a package is left on your doorstep—and alert you when it has been removed.

Q

Quit?

(\'kwit\)

Sick of breaking down delivery boxes? Feeling queasy about the working conditions that Amazon employees endure? Want Amazon out of your life? Good luck! We've mapped out a few ways of going clear.


Where do you want to start?
I can live without Whole Foods. Instead I'll shop at...
Thrive Market for organics
Powered by Amazon Web Services! Try again
My local farmers market
You're in the clear! Return to start
Walmart and Target
I don't need Ring cameras watching over my neighborhood. I'll set up a security system with...
A dog!
Nest
So you're okay with Google watching you?
Vivint
Powered by AWS!* Try again
Abode
Wyze
I don't need to buy clothes on Amazon. Instead I'll shop at...
Walmart and Target
Shopify's Shop app, for independent and startup brands
You're in the clear! Return to start
Shopbop
Zappos
Owned by Amazon! Try again
I prefer to be around real book lovers anyway
Like the folks on Goodreads
Bookshop.org supports indie stores, right?
You're in the clear! Return to start
Midge Maisel isn't all *that* marvelous. I prefer watching shows on...
Netflix
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Fine, I'll just read a book.

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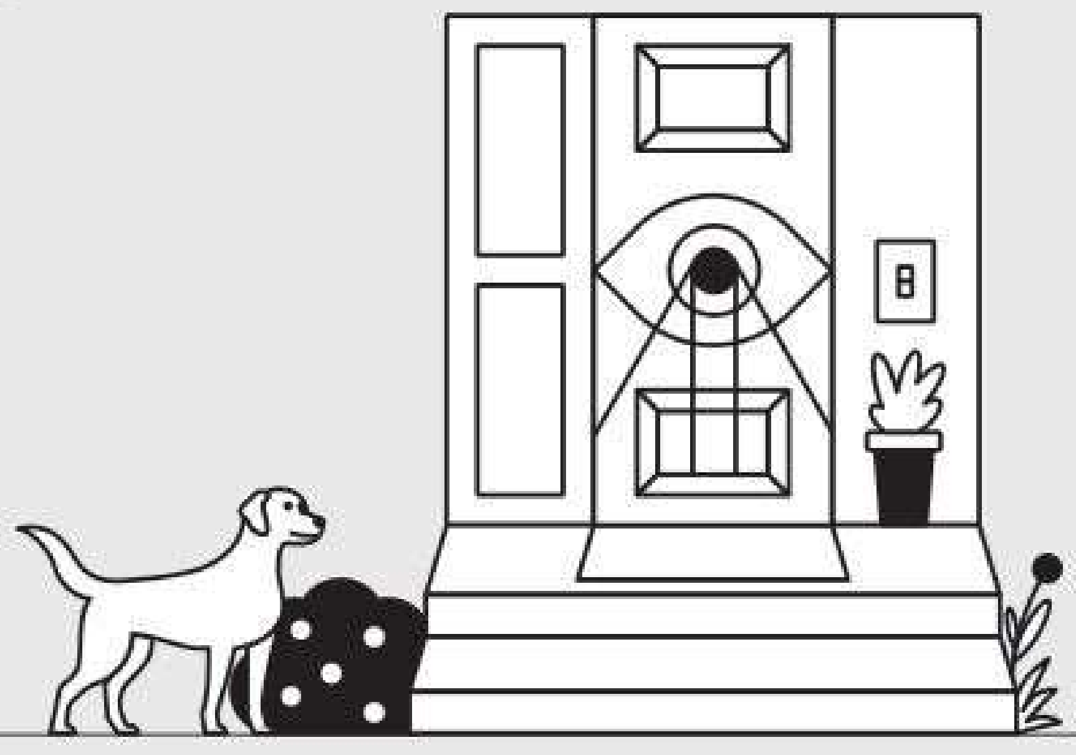
* REPORTEDLY

R

Ring

(\'riŋ)



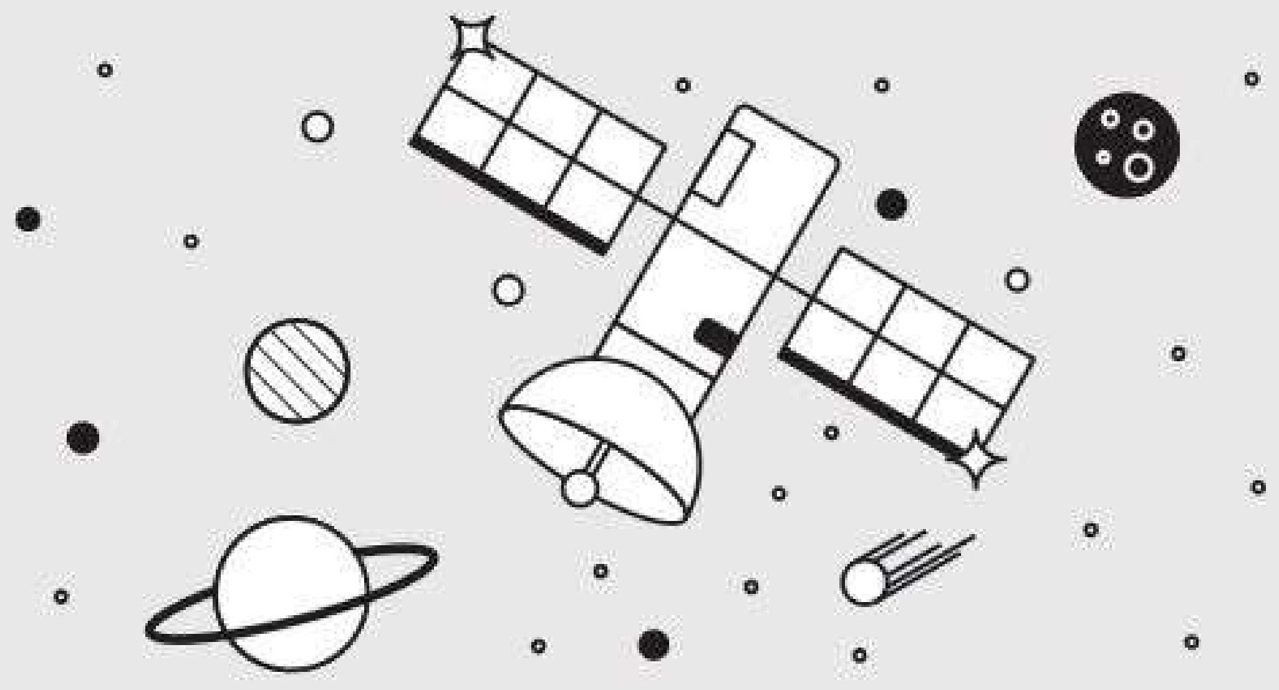
After Amazon acquired Ring, makers of the popular Ring Video Doorbell, in 2018, it began tapping into customers' larger anxieties, assembling a formidable security and surveillance ecosystem. Today, the Ring doorbell camera is sold alongside indoor and outdoor cameras, sensors, and alarm systems. A Ring car camera and alarm are in the works, as is a drone that flies through your house to surveil the scene (and startle intruders); an upcoming subscription will offer professional monitoring for every outdoor motion alert. Ring also forms the backbone of Amazon Sidewalk, a project that's weaving an entire neighborhood's cameras into a wireless network. Even Amazon's other hardware products are being pulled in. Echo speakers can send alerts when they hear the sounds of intruders, and play dog barks when an outdoor camera detects motion. A new Ring alarm system has Amazon's Eero Wi-Fi router built in, and an Alexa-powered robot that patrols your home for danger is coming soon. This may be good for business, but it

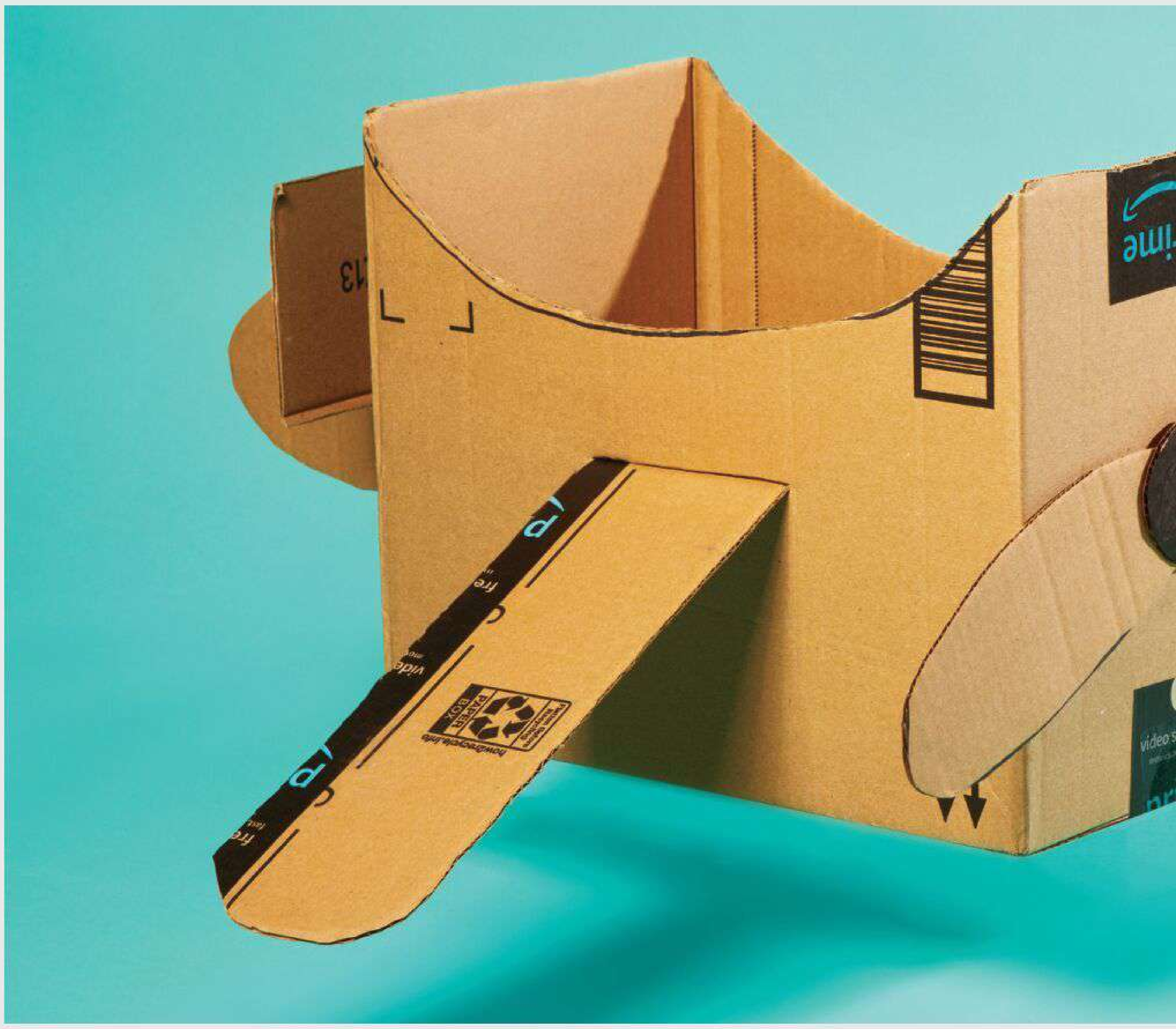
S

Satellites

(\'sa-tə-līts\)

Over the next several years, Amazon plans to send a constellation of 3,236 satellites into low Earth orbit. Its Project Kuiper is designed to bring better bandwidth to people in rural locations (read: potential Amazon shoppers). Amazon intends to offer faster downloads—up to 400 Mbps—but has yet to specify costs and any data caps. Also unclear: whether this project will employ Jeff Bezos's forthcoming Blue Origin reusable rockets to deliver the satellites, as it competes with SpaceX's comparable Starlink constellation.





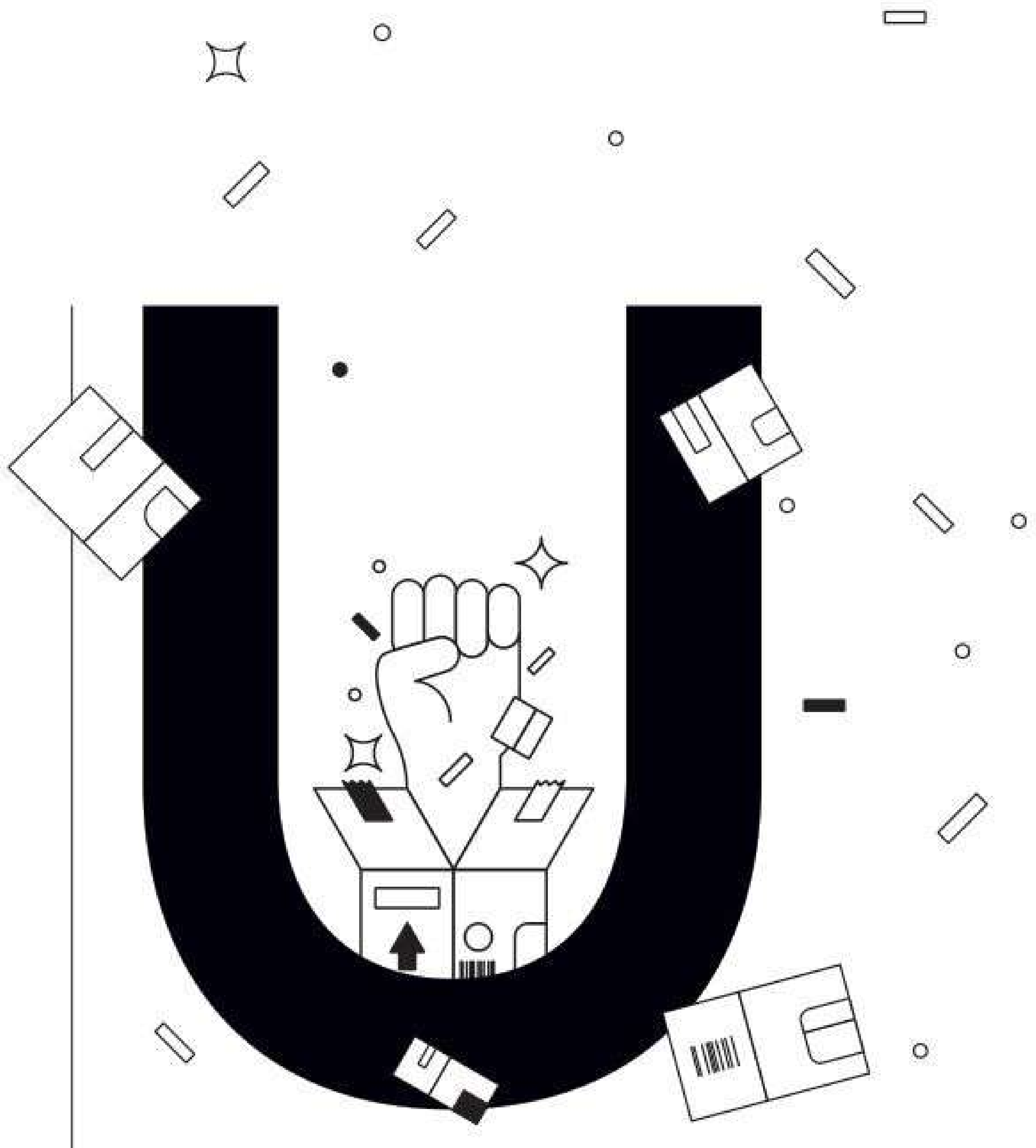
T

Transportation

(\'tran(t)s-pər-'tā-shən\)

Amazon's quest to knit together the most comprehensive fulfillment network on the planet has led to investments in autonomous and electric cars and trucks (see "Z is for Zoox," page 59), the creation of Amazon Air and its fleet of cargo jets, and the development of customized, three-wheeled cargo e-bikes for last-mile delivery. It's also taking more control of the ocean routes comes at a cost, say critics. "Amazon makes money when people feel less safe in their neighborhoods and their homes," says Matthew Guariglia, a policy analyst for the Electronic Frontier Foundation. "And that, in general, is bad for society."

that are used to carry freight between China and the rest of the world—which could make Amazon the shipping network of choice for both its own merchants and outside companies.



Union

(\'yün-yən\)

When the 100,000-member Retail, Wholesale and Department Store Union filed to hold an election at the Amazon warehouse in Bessemer, Alabama, in November 2020, it was a potentially epochal moment. The labor movement was eager to capitalize on the rise of worker activism during the pandemic and establish a beachhead within the country's second-largest private employer. Labor leaders rallied to the cause. President Biden offered a message of support. And Amazon pulled out all the stops to squash the campaign. The result: Workers voted against unionizing, 1,798 to 738.

But it's not over yet. The National Labor Relations Board's regional director is considering whether Amazon violated labor law with tactics like having a special mailbox set up to collect ballots. If the results are voided, the RWDSU will have to decide whether it wants to re-vote (though the company's high turnover rate means a potentially different pool of voters).

A vote to unionize would be historic, but replicating it across other warehouses would be difficult, given the atomized nature of Amazon employment. "Even if you won a couple of Amazon facilities, it doesn't necessarily mean it's going to sweep in," says Erik Loomis, author of *A History of America in Ten Strikes*. "It's not as if we're talking about a situation where there are tens of thousands of employees in one place, or a situation like in auto or steel, where you had a dense concentration [of workers] in particular cities."

Other unions still see the company as an organizing opportunity. The Teamsters—which represents 1.3 million logistics employees, most notably at UPS—recently announced a plan to focus its efforts on Amazon. Randy Korgan, the Teamsters' national director for Amazon, says that the union will employ a spectrum of tactics, like continuing the work it's done to block local tax breaks for Amazon facilities over the past year, to inspire workers to take action in their workplaces. He cites Amazon's recent starting-wage increase—it's now paying an average of $18 an hour—as evidence that the company is paying attention.

Even without the support of an established union, Amazon workers have shown a growing appetite for activism, fueled by anger about conditions in the warehouses. Employees at a Staten Island facility, for example, are currently attempting to form a new, independent union. Amazon may have won the battle in Bessemer, but its workers are starting to capture headlines elsewhere—putting all of corporate America on notice.

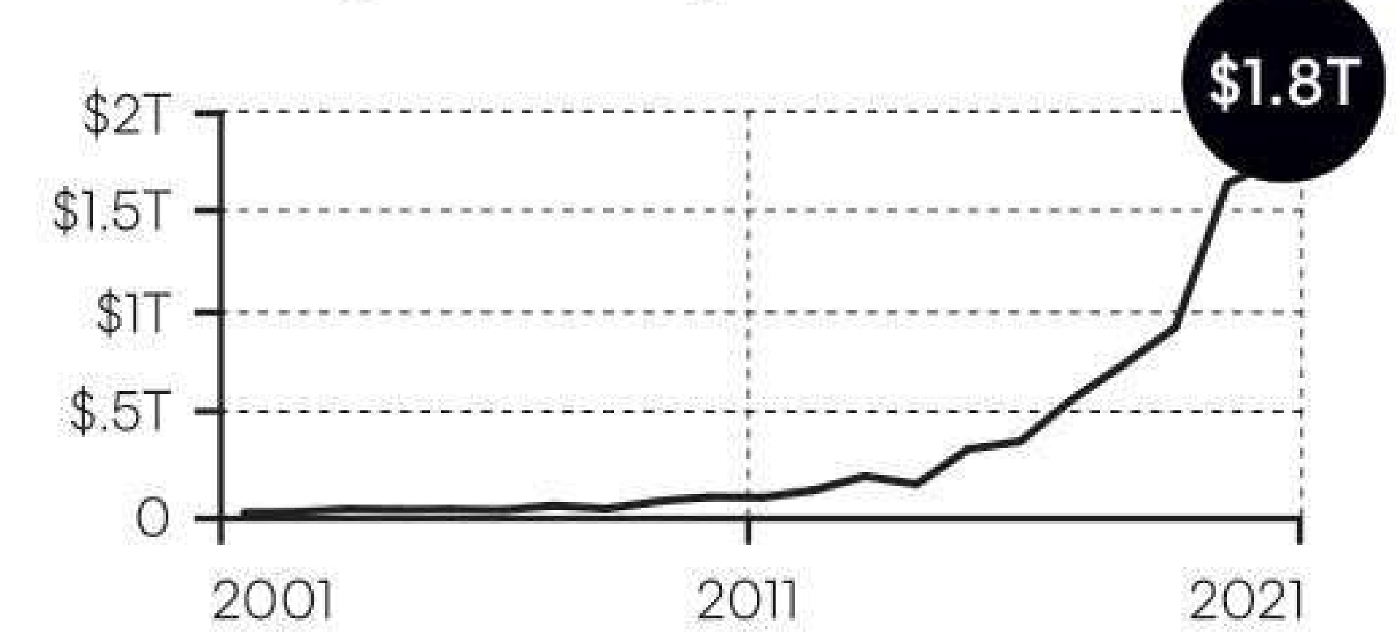
V

Valuation

(\val-yə-'wā-shən\)

Jeff Bezos famously took the long view, telling investors in 1997 that the company would "make investment decisions in light of long-term market leadership considerations rather than short-term profitability."

Amazon market capitalization over time (in trillions)



Source: Amazon (Valuation)

W

Wizards

(\'wi-zərdz\)

With its *Lord of the Rings* prequel series, due in September 2022, Amazon Studios is making its intentions clear: It's no longer in the art-house business when it comes to making original movies and TV shows, as it was when *Manchester by the Sea* won two Oscars, in 2017. It intends to generate blockbuster events, and spend handsomely to do so. (*LOTR*'s first season cost an eye-popping $465 million.) This year, the company acquired MGM Studios for $8.5 billion, and nearly doubled its spending on content to $11 billion in 2020, closing the gap with Netflix (which spent $17 billion). But it's making more calculated, higher-profile bets. Remakes of *Mr. and Mrs. Smith*, *The Girl With the Dragon Tattoo*, and *I Know What You Did Last Summer* are in the works, along with another epic, wizard-centric fantasy series, *The Wheel of Time*.

X

eXpectations

(\'ek-spek-'tā-shənz\)

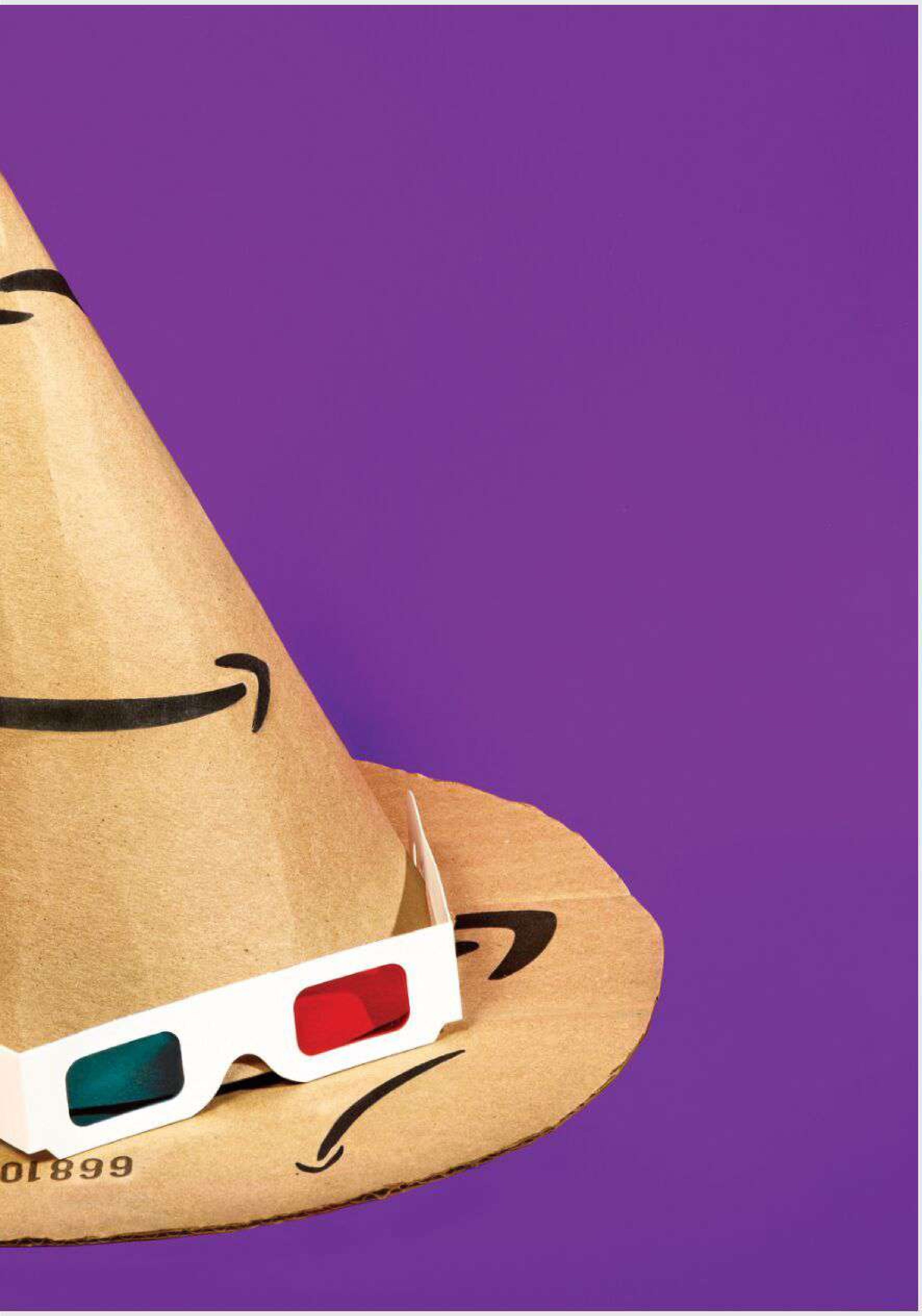
"Amazon is not really a retailer. It's a technology company with a relentless dissatisfaction with the status quo. That's what enabled them to get where they are today," says Natalie Berg, founder of NBK Retail consultancy and coauthor of *Amazon: How the World's Most Relentless Retailer Will Continue to Revolutionize Commerce*. Here, she explains how Amazon continues to reset consumer expectations, and disrupt retail in the process.

What are the most significant ways that Amazon has rewired consumer behavior since it launched 27 years ago? If you think back to online shopping in the early 2000s, it was a pretty laborious process. We tend to forget this, because today it's effortless. We have Amazon to thank for that. It pioneered personalized recommendations, and user-generated ratings and reviews, which seem so commonplace now. Same with one-click checkout. And we expect delivery to be fast, reliable, and free, though there is an environmental cost to all those cardboard boxes turning up.

How did Amazon change our expectations for delivery, specifically? Amazon led this race to the bottom. One of the things that Prime did was to remove the need to consolidate orders. You could just choose that random thing that you needed straightaway, and it would turn up the next day—and you'd feel no guilt about it. That's starting to shift. There's an opportunity now to retrain consumers to expect slower delivery.

And now Amazon is seeking to change physical retail. Amazon is very good at looking at the overall customer experience and saying, Where is the friction? The obvious place in brick and mortar is the checkout. Amazon sees this as a problem they

(*Continued on page 93*)



Y

“YOU GUYS PAID FOR ALL THIS.”

—JEFF BEZOS, THANKING “EVERY AMAZON EMPLOYEE” AND “EVERY AMAZON CUSTOMER” AFTER RETURNING FROM HIS BLUE ORIGIN SPACE FLIGHT, IN JULY. THE FOUR-MINUTE TRIP REPORTEDLY COST $5.5 BILLION

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- ▲ Ruth Reader
- ■ Erin Schulte
- ● Mark Wilson
- ▲ Jay Woodruff
- ■ Christopher Zara

Zoox

(\'züks\)

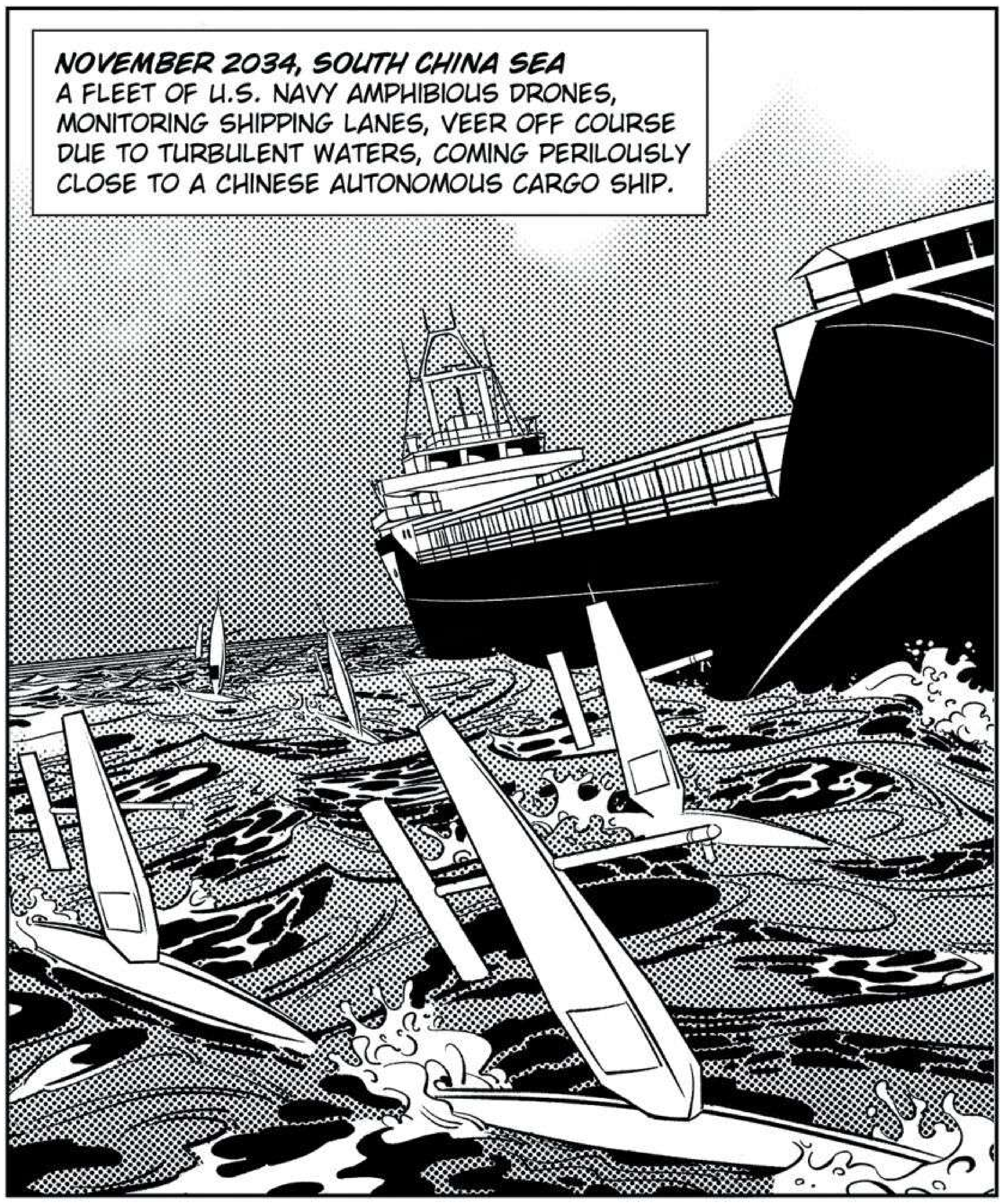
While most other autonomous vehicle companies insert their technology into existing cars, Zoox is reimagining what the car is from the ground up. Last December, six months after it was acquired by Amazon for $1.2 billion, the company unveiled its futuristic robotaxi: a boxy, four-wheeled electric vehicle with sliding doors and two rows of seats facing each other, like a ski gondola on wheels. The compact taxi, which has no designated front or back and can move in either direction at up to 75 mph, was designed to maneuver through dense urban environments. Zoox is Amazon’s third-largest acquisition (behind Whole Foods and MGM), and signals the company’s interest in building its own fleet of autonomous and electric vehicles. Though Zoox’s car is currently being developed for ride-hailing services, one can easily imagine it motoring through city streets, dropping off cardboard boxes to Amazon Prime members.

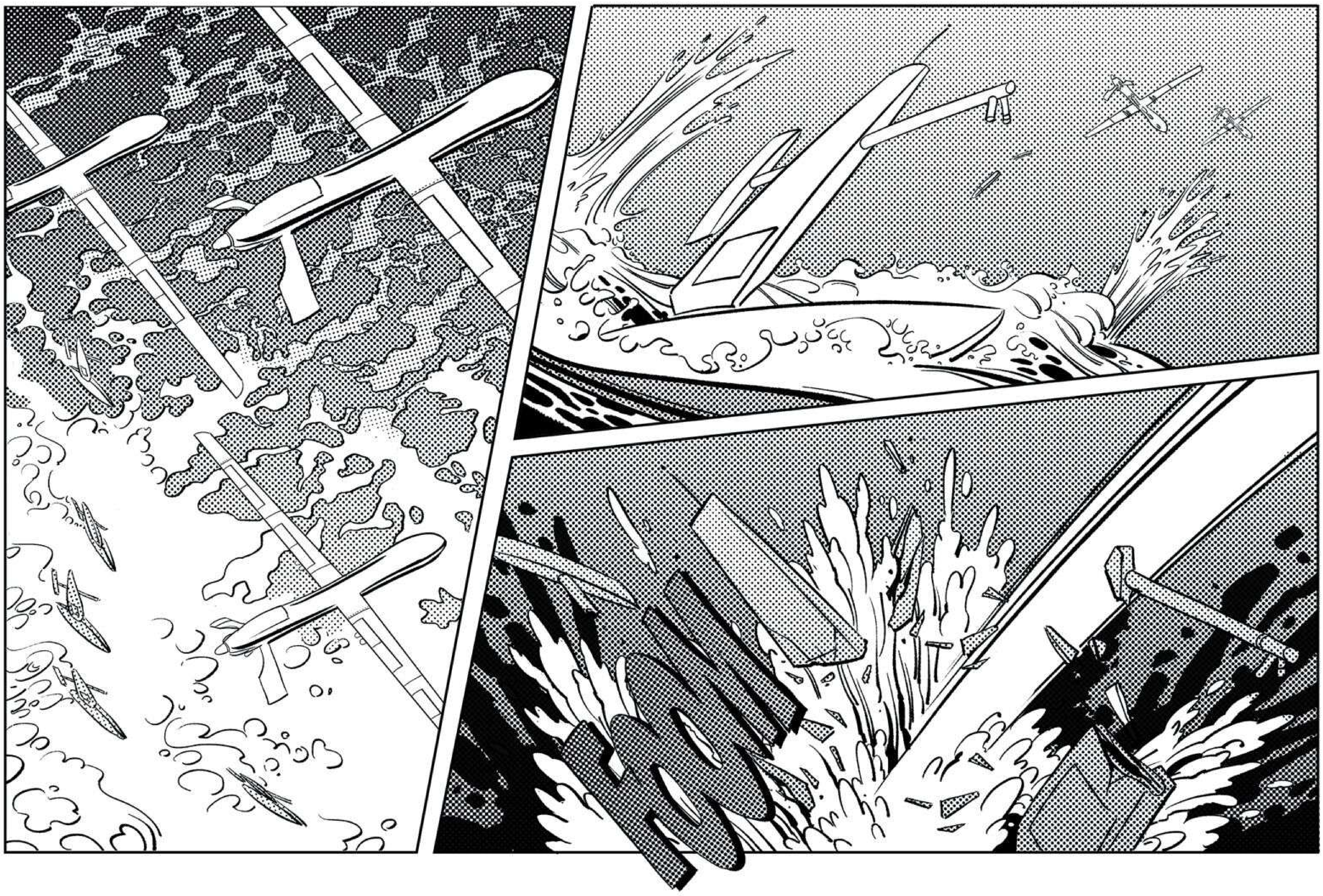
THE NEW MILITARY-SILICON VALLEY COMPLEX

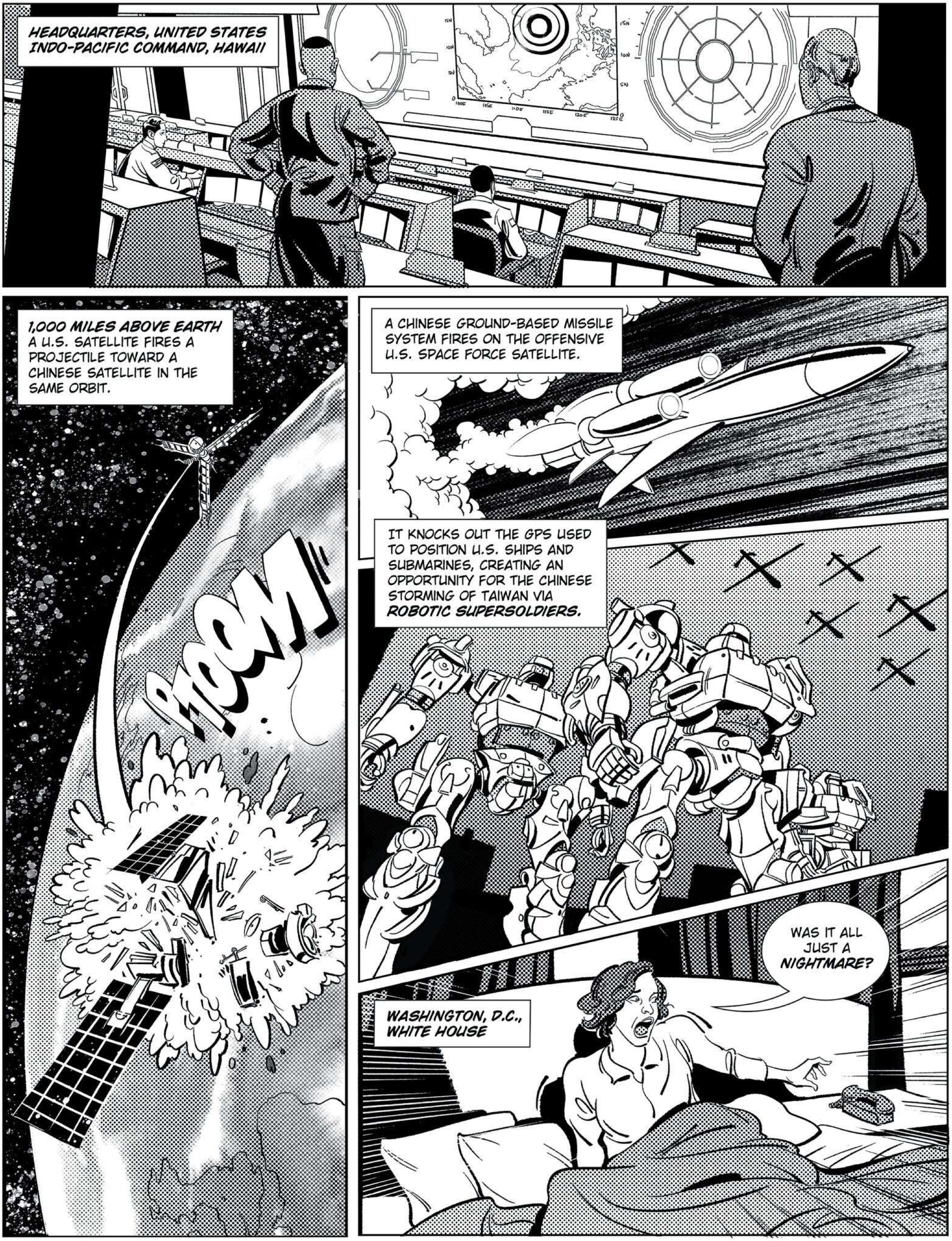
AMID RISING TENSIONS WITH CHINA, A CADRE OF DEFENSE INSIDERS AND TECH PLAYERS WANT TO REMAKE THE PENTAGON IN SILICON VALLEY'S IMAGE.

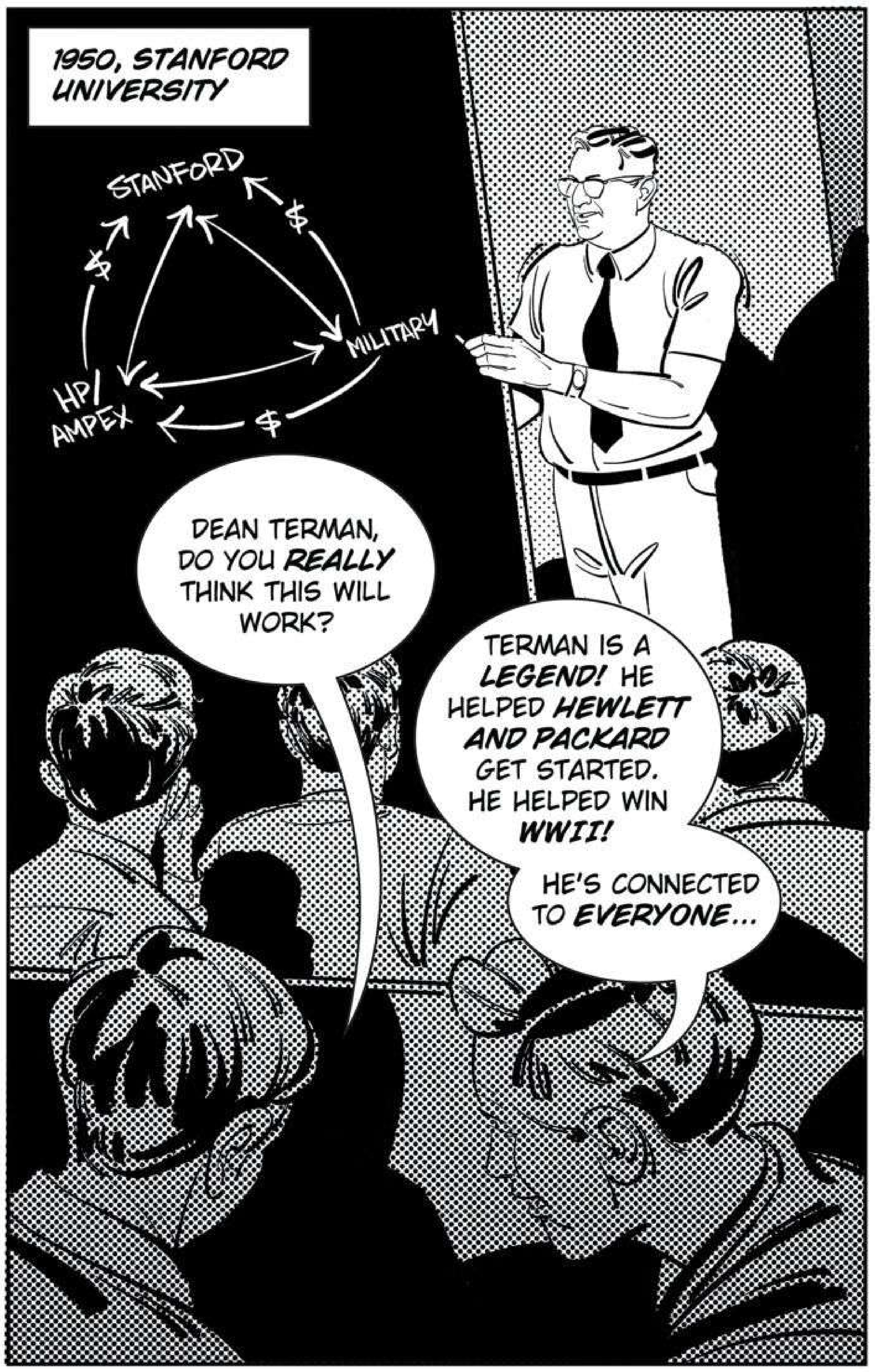
↘ BY MARK SULLIVAN

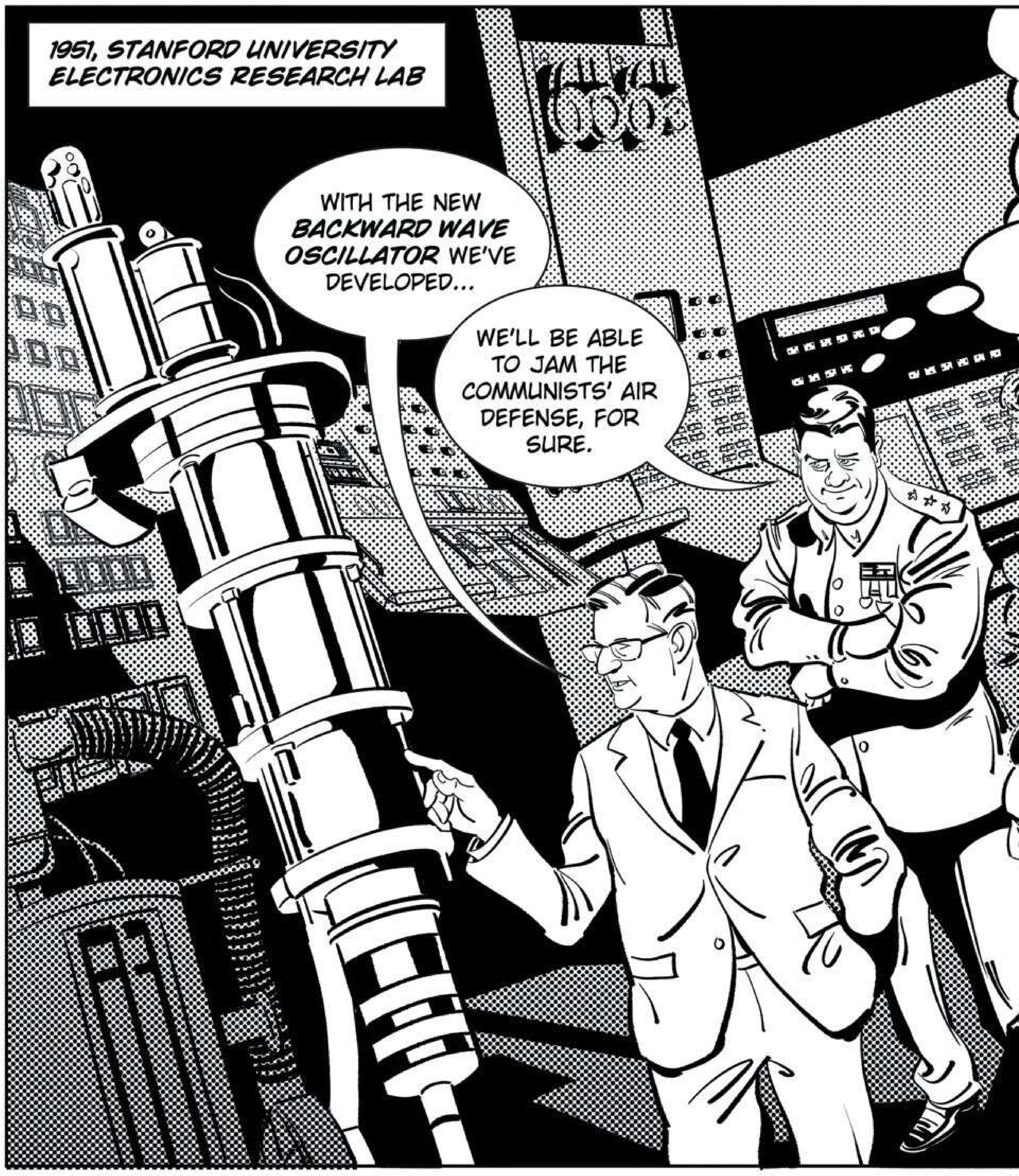
↘ COMIC BY KAGAN MCLEOD


NOVEMBER 2034, SOUTH CHINA SEA
A FLEET OF U.S. NAVY AMPHIBIOUS DRONES, MONITORING SHIPPING LANES, VEER OFF COURSE DUE TO TURBULENT WATERS, COMING PERILOUSLY CLOSE TO A CHINESE AUTONOMOUS CARGO SHIP.




HEADQUARTERS, UNITED STATES INDO-PACIFIC COMMAND, HAWAII
1,000 MILES ABOVE EARTH A U.S. SATELLITE FIRES A PROJECTILE TOWARD A CHINESE SATELLITE IN THE SAME ORBIT.
BOOM
A CHINESE GROUND-BASED MISSILE SYSTEM FIRES ON THE OFFENSIVE U.S. SPACE FORCE SATELLITE.
IT KNOCKS OUT THE GPS USED TO POSITION U.S. SHIPS AND SUBMARINES, CREATING AN OPPORTUNITY FOR THE CHINESE STORMING OF TAIWAN VIA ROBOTIC SUPERSOLDIERS.
WASHINGTON, D.C., WHITE HOUSE
WAS IT ALL JUST A NIGHTMARE?

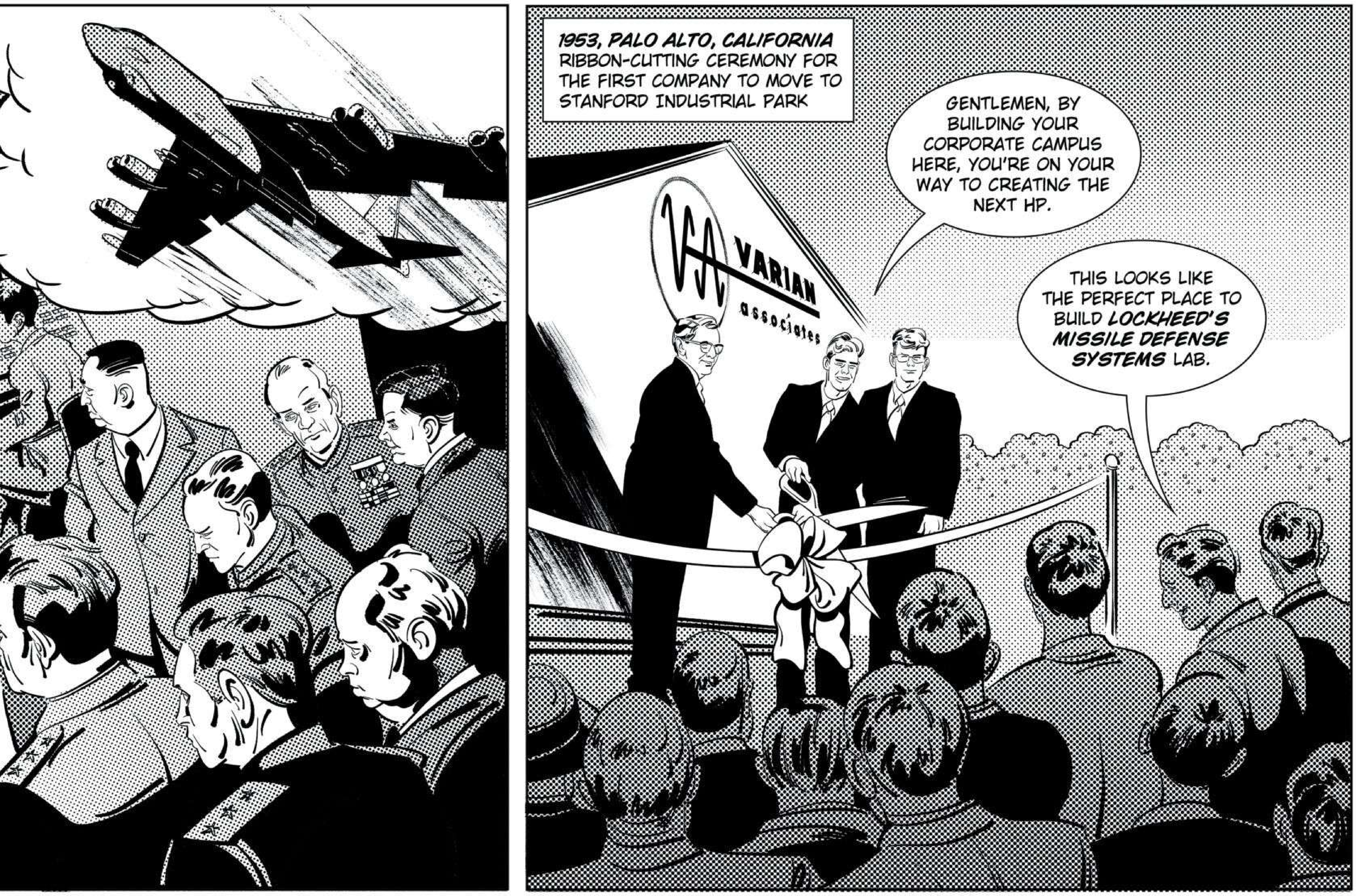

1950, STANFORD UNIVERSITY
STANFORD
$
$
MILITARY
HP/ AMPEX
$
DEAN TERMAN, DO YOU REALLY THINK THIS WILL WORK?
TERMAN IS A LEGEND! HE HELPED HEWLETT AND PACKARD GET STARTED. HE HELPED WIN WWII!
HE'S CONNECTED TO EVERYONE...


1951, STANFORD UNIVERSITY ELECTRONICS RESEARCH LAB
WITH THE NEW BACKWARD WAVE OSCILLATOR WE'VE DEVELOPED...
WE'LL BE ABLE TO JAM THE COMMUNISTS' AIR DEFENSE, FOR SURE.

I DON'T KNOW WHAT YOU WANT TO CALL THE CONFLICT WE'RE IN WITH CHINA AND RUSSIA, BUT I'D SAY WE'RE AT WAR."

MICHAEL BROWN, DIRECTOR OF THE DEFENSE Innovation Unit (DIU) within the U.S. Department of Defense, declares war rather matter-of-factly. "It's just not war in the way we typically think," says the longtime Silicon Valley executive who transitioned into government service in 2016. But when adversaries get to the point of "shutting down pipelines and creating other damage," he says, you're seeing the "kinetic effects of cyber."

When Brown and I chat in August—at a picnic table in a glade of cedar trees behind a tan brick building in Mountain View, California, that houses both the 341st Readiness Division of the U.S. Army and the DIU—news continues to dribble out about the extent of the 2020 SolarWinds hack. The event involved a group reportedly backed by the Russian government that compromised networks of a number of government agencies, including the Department of Energy and the National Nuclear Security Administration. A couple of weeks earlier, Secre-


1953, PALO ALTO, CALIFORNIA
RIBBON-CUTTING CEREMONY FOR THE FIRST COMPANY TO MOVE TO STANFORD INDUSTRIAL PARK
GENTLEMEN, BY BUILDING YOUR CORPORATE CAMPUS HERE, YOU'RE ON YOUR WAY TO CREATING THE NEXT HP.
THIS LOOKS LIKE THE PERFECT PLACE TO BUILD LOCKHEED'S MISSILE DEFENSE SYSTEMS LAB.
VA
VARIAN
associates

tary of State Antony Blinken, along with a coalition of U.S. allies, accused China of engaging in cyber espionage, and the U.S. Department of Justice charged four Chinese nationals with being part of a global hacking campaign targeting companies, government agencies, and universities. Chinese officials vehemently denied the charges.

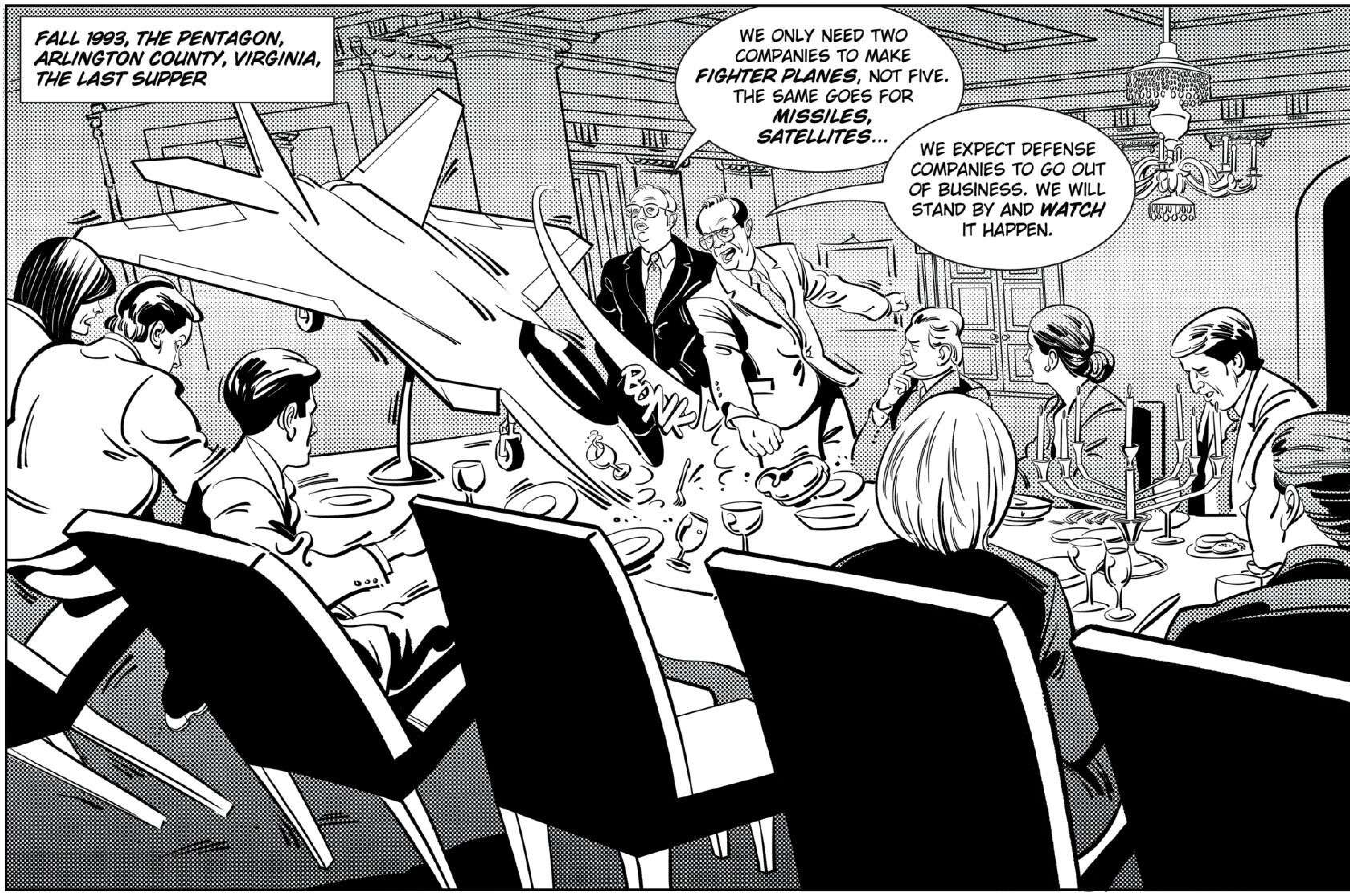
"For cyber, for electronic warfare, for misinformation," Brown says, "we need to be shifting more dollars to those domains."

Brown's job is to try to make that happen. As head of the DIU, he runs what's designed to be an agile skunk works within the Department of Defense (DOD). It identifies commercial tech products that it believes the DOD needs to prepare for technology-driven warfare, and seeds the companies that make them with research funds. The startups that meet the government's standards win a contract with a service branch such as the Air Force. Some of the companies the DIU has worked with include Anduril Industries, the drone and security startup founded by Oculus VR creator Palmer Luckey; C3.ai, enterprise-grade predictive tech founded by longtime entrepreneur Tom Siebel; and even Oura Health, maker of a ring that tracks a wearer's sleep and activity, to anticipate soldiers' illnesses before they show symptoms.

The DIU was created in 2015, during the Obama administration. Brown, who arrived in Silicon Valley four decades ago as a student at Stanford's graduate school of business and rose to become CEO of the security company Symantec, has run it since 2018. His success led President Biden to nominate him in April to be the DOD's undersecretary for acquisition and sustainment, the Pentagon's top weapons buyer. In July, Brown withdrew his nomination amid an ongoing investigation involving a claim that he showed undue favoritism in his hiring practices. He denies the charge and declines to discuss it.

The DIU's success has spawned scores of other such innovation cells within the Pentagon. Although they operate independently of one another, together they reflect a distributed effort to modernize national defense—and a realization that the U.S. government needs to make history rhyme, echoing the efforts that ultimately won the Cold War with the Soviets by relying on the microwave and chip manufacturers clustered in the flatland south of San Francisco. At that time, in the 1960s, the DOD was funding twice as much R&D as U.S. businesses were, and it enlisted what came to be known as Silicon Valley to design and manufacture the processors that would guide missiles, launch satellites, and take humans to the moon. Lockheed (now Lockheed Martin) set up its division to build Polaris missiles in Sunnyvale, and Fairchild Semiconductor, the company that in many ways spawned the modern technology industry, made 80% of its early revenue from the military. "We were the investor, we were the first customer, we were an early adopter," says Brown.

But then, starting in the late 1970s, regulatory changes enabled the rise of ven-


FALL 1993, THE PENTAGON, ARLINGTON COUNTY, VIRGINIA, THE LAST SUPPER
WE ONLY NEED TWO COMPANIES TO MAKE FIGHTER PLANES, NOT FIVE. THE SAME GOES FOR MISSILES, SATELLITES...
WE EXPECT DEFENSE COMPANIES TO GO OUT OF BUSINESS. WE WILL STAND BY AND WATCH IT HAPPEN.
BONK

ture capitalists, who pushed tech startups to build businesses at a pace incompatible with the agonizing, red-tape-laden process required to win and fulfill government contracts. In the Reagan era, the military increasingly tailored national defense around massive platforms such as aircraft carriers that could only be built by the largest defense contractors, known as primes, such as Northrop Grumman and Raytheon.

Today, though, the technology that will likely decide 21st-century warfare will be based on AI, autonomy, quantum computing, space, cybersecurity, and biotech. In other words, sectors in which Silicon Valley has already heavily invested to serve businesses and consumers. These technologies are being developed "at a much faster pace and with a much faster delivery than anything the primes or DOD is working on," says Steve Blank, the entrepreneur and Stanford professor who authored a series, *The Secret History of Silicon Valley*, about the military ties that created the region. "The Defense Department is realizing that we've got to have access to leading technology," Brown tells me.

Remaking the Pentagon in Silicon Valley's image will be far more difficult a public-private challenge than, say, Uber and Lyft steamrolling municipal taxi commissions. "You have to think about the military as a large bureaucracy that has existing relationships with primes, and they all live in a symbiosis that makes sense to them," says Eric Schmidt, the former chairman and CEO of Google who has backed several defense startups and chaired the National Security Commission on Artificial Intelligence. Those major contractors have entrenched themselves by influencing contracting rules, spending heavily on lobbying, and sprinkling stable jobs across congressional districts.

Should Silicon Valley unseat legacy defense companies, this transformation will come with its own risks. Autonomous weapons remove military personnel from harm, but they also inoculate human operators from the suffering they inflict. Even AI's proponents express concern that it could advance at a pace leading to a fully automated war taking place between algorithms. Two generations ago, the microchips developed in the Valley were used in the nuclear missiles that very nearly ended life as we knew it.

In exchange for that military buildup, society received middle-class jobs and eventually the commercial internet. Today, a software-focused defense industry may not yield the same civic benefits. General Dynamics, for example, has 84,000 full-time U.S. employees, located in all 50 states. Anduril has approximately 700 employees, mostly in Irvine, California.

Silicon Valley startups have targeted, and engulfed, several large economic sectors over the past decade, from education to finance. Defense is the final frontier. "We've affected probably 1% to 2% of DOD procurement at this point," Brown says. "Dollarwise, I'm not expecting it to be more than 50 [percent], but it sure as heck needs to be more than 1."

I CAN'T BELIEVE PERRY, A *STANFORD* GUY, WOULD DROP THIS BOMB ON US.
WANNA *MERGE?*
LAY OFF *11,000* PEOPLE IN PALO ALTO TOMORROW.
WE HAD A GOOD RUN. MAYBE WE CAN GET JOBS BUILDING THAT *WORLD WIDE WEB...*

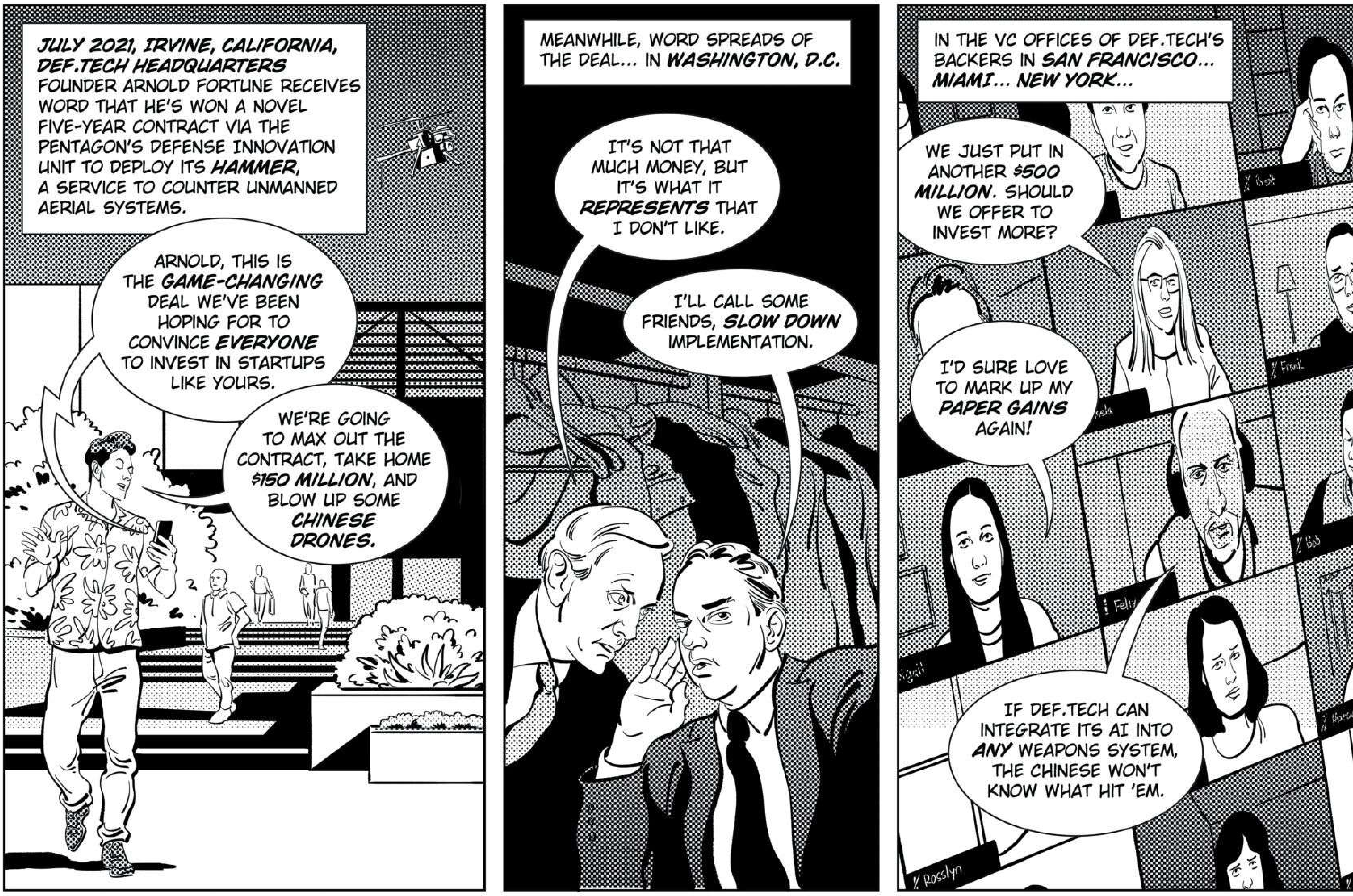
> **THE SILICON VALLEY MODEL FOR BUILDING PRODUCT, THE ITERATION SPEED, HOW YOU INVEST, THE ECONOMICS, HAS BECOME COMPLETELY DOMINANT.”**

BRIAN SCHIMPF, ANDURIL'S CEO AND A cofounder, has helped bring that pace to defense tech. The four-year-old startup—which is focused solely on defense, has raised almost $700 million in venture capital, and is valued at $4.6 billion—is arguably the star of the DIU's effort to bring Silicon Valley's speed and engineering talent to the Pentagon. In July, Anduril won its 24th definitive contract, according to the federal procurement database, a five-year deal worth up to $99 million to protect U.S. bases facing drone swarms. This threat has traditionally proved hard to fend off—fighter planes are too high up to address havoc taking place 30 feet above the ground; U.S. troops in Iraq and Syria have been attacked by military-grade and, increasingly, consumer drones fitted with explosives.

In response, Anduril developed a system that keeps watch via sensors on tall poles and drones that autonomously police the air. Computer vision classifies any objects it sees, sending data back to human operators who decide what to do. Some bases dispatch humans to investigate, but Anduril also includes a specialized drone, known as the Anvil, capable of attacking an enemy drone, bodily—knocking it out of the sky. With DIU support, Anduril's counter-unmanned aircraft system went from prototype to a product that met defense requirements in 18 months. “In a traditional DOD process,” says Schimpf, “you'd have a two-to-three-year cycle of just identifying a threat.”

The DIU has shown that it can move even faster. It worked with C3.ai, which serves both large businesses and governments with predictive analytics, to develop AI in just six months that can anticipate when Air Force planes are going to need maintenance. C3.ai's model considers telemetry data such as vibration and rotational velocity, as well as weather information. It then builds “machine-learning models that will predict 50 or 100 flight hours in advance that this system is going to fail,” says founder and CEO Tom Siebel, who took C3 public in December 2020. “We were able to increase availability of aircraft, like, 50%.”

According to the DIU's 2020 annual report, the group has made 208 awards since 2016, totaling almost $650 million. Twenty-six of them have resulted in a subsequent contract within the Pentagon. The DIU concept has spread across the defense agencies, each with


JULY 2021, IRVINE, CALIFORNIA, DEF.TECH HEADQUARTERS
FOUNDER ARNOLD FORTUNE RECEIVES WORD THAT HE'S WON A NOVEL FIVE-YEAR CONTRACT VIA THE PENTAGON'S DEFENSE INNOVATION UNIT TO DEPLOY ITS HAMMER, A SERVICE TO COUNTER UNMANNED AERIAL SYSTEMS.
ARNOLD, THIS IS THE GAME-CHANGING DEAL WE'VE BEEN HOPING FOR TO CONVINCE EVERYONE TO INVEST IN STARTUPS LIKE YOURS.
WE'RE GOING TO MAX OUT THE CONTRACT, TAKE HOME $150 MILLION, AND BLOW UP SOME CHINESE DRONES.
MEANWHILE, WORD SPREADS OF THE DEAL... IN WASHINGTON, D.C.
IT'S NOT THAT MUCH MONEY, BUT IT'S WHAT IT REPRESENTS THAT I DON'T LIKE.
I'LL CALL SOME FRIENDS, SLOW DOWN IMPLEMENTATION.
IN THE VC OFFICES OF DEF.TECH'S BACKERS IN SAN FRANCISCO... MIAMI... NEW YORK...
WE JUST PUT IN ANOTHER $500 MILLION. SHOULD WE OFFER TO INVEST MORE?
Frank
I'D SURE LOVE TO MARK UP MY PAPER GAINS AGAIN!
Bob
IF DEF.TECH CAN INTEGRATE ITS AI INTO ANY WEAPONS SYSTEM, THE CHINESE WON'T KNOW WHAT HIT 'EM.
Rosslyn

its own tech focus, investment strategy, and a name that's either a dizzying acronym or signifies innovation via a suffix, such as *Lab* or *X*.

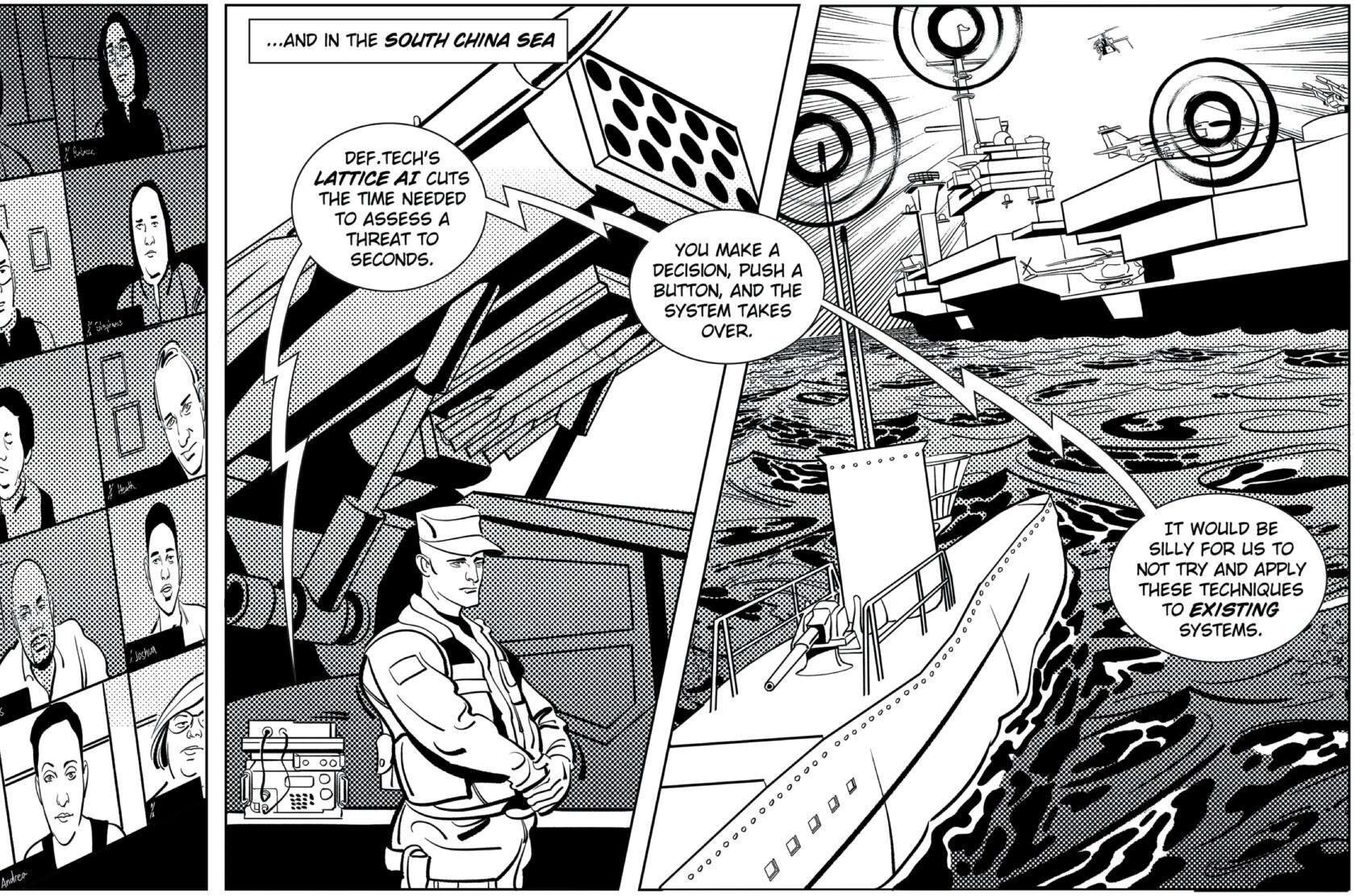
One of the more notable examples, Afwerx, extends grant money to tech startups and helps match them with potential buyers within the Air Force. When Will Roper took over the program, in 2018, he found ways to operate it like a VC firm, doling out $50,000 in seed funding for startups to prove their tech could work for the government, and then providing contracts up to $26 million to the ones ready to serve. Roper, who left in January and in July became CEO of Volansi, a startup that makes a vertical takeoff and landing cargo drone, made 2,300 deals during his tenure.

For all this ferment, Roper—and his colleagues—lives in fear that it's not enough. "[When] a new person comes along with a new idea, it's very hard for them to get the money, the authorizations in a timely fashion before they run out of cash," says Eric Schmidt. "This is known as the Valley of Death."

> **"YOU KNOW, WE'RE DOING IT OUT OF GREED AND AVARICE, IN WHICH LIES THE HOPE OF PROGRESS."**
>
> ↙

JOSH WOLFE DOESN'T LOOK LIKE A venture capitalist, much less one who's arguably the most active investor in defense tech. The self-described "dark cynic" dresses the part, wearing all black. "When I'm in the Pentagon wearing Vans and I put a sweater shawl over my black T-shirt, it's a sign of signaling authenticity," he says. "You're getting what you see." When we meet in September in his New York offices, he's sporting a couple days' scruff, and his salt-and-pepper hair crests like a wave. Fellow investor and popular podcaster Patrick O'Shaughnessy has called him the real Tony Stark. "Definitely not," Wolfe demurs.

While many of Wolfe's portfolio companies have won funding from within the Pentagon—he's an Anduril investor as well as a backer of several space startups, including Orbital Insight, Planet, and Relativity Space—he is as impatient as anyone within the tech world with the Defense Department's efforts to reinvent itself. "It's great that the DOD does all these [innovation grants]. You total all that money?" he muses. "It's $1.8 billion. Look at the DOD's budget [for R&D]. It's $114 billion-ish. [And if] you look at what venture capital has put in technology in the last year, it's $135 billion. Only a portion of that is directly applicable to defense, but the amount of money in sheer commercial interests to fund these things. . . ."


Stephanie
Heath
Joshua
Andrea
...AND IN THE SOUTH CHINA SEA
DEF.TECH'S LATTICE AI CUTS THE TIME NEEDED TO ASSESS A THREAT TO SECONDS.
YOU MAKE A DECISION, PUSH A BUTTON, AND THE SYSTEM TAKES OVER.
IT WOULD BE SILLY FOR US TO NOT TRY AND APPLY THESE TECHNIQUES TO EXISTING SYSTEMS.

Wolfe's Lux Capital seeks to identify technology that could be valuable for national defense even before the DOD can. In 2016, when the firm first invested in Saildrone, which makes autonomous seafaring vessels, the startup had mostly been focused on exploration. "The original investment hypothesis was that this is going to be big for commercial, research, academic, and climate purposes," he says. Upon seeing the high-quality observational work that Saildrone was doing for the National Oceanic and Atmospheric Administration, however, Wolfe and his partners made the connection that defense agencies would ultimately need something similar, envisioning the value of Saildrones surveying international waters near Russia, the Arctic, China, and the South China Sea. "There are strategic capabilities that [Saildrone] may have that, frankly, the Navy doesn't."

He's also unafraid to go anywhere in the world to find, as he says, "what sucks, because everything around us was invented by somebody who basically said that." A few years ago, at the invitation of General Tony Thomas, who was then in charge of U.S. Special Operations Command, Wolfe spent two weeks in Southeast Asia assessing everything from "satellite communications to blue-dot tracking of individuals."

The trip, combined with his burgeoning friendship with "T2," as Wolfe calls Thomas, led to Thomas joining Lux as a venture partner in January 2020. Lux's portfolio now has defense startups in "systems—space, air, sea, and land—that are involved in everything hardware and software," Wolfe says. Although he makes clear that Thomas is honoring the ethics requirements that prevent a recently retired official from actively approaching anyone at the DOD, "Tony has been good in saying this is the person that you're going to want to talk to." This kind of effort, Wolfe notes, pales against the "ungodly amounts" that prime military contractors spend on lobbying.

> **“THE NAVY HOSTS PRODUCT DEMONSTRATIONS EVERY TWO YEARS. THAT'S NOT FAST ENOUGH.”**
>
> ↙

RICH JENKINS, CEO OF SAILDRONE, knows a lot about evaluating water drones, and the Navy's biennial, four-day events cannot compare to the field testing he's put his products through. In 2019, one of his Saildrones completed the first autonomous circumnavigation of Antarctica, traveling more than 13,000 miles in 196 days, enduring 50-foot

(Continued on page 94)

Build Back With Impact

This past year has been a tempestuous one for business. It's also an opportunity.

FAST COMPANY

BY STEPHANIE MEHTA

ILLUSTRATIONS BY SIMONE NORONHA

“Build Back Better” has been a rallying cry in the disaster recovery community for 15 years. What began as an exhortation to construct stronger buildings and roads following hurricanes and earthquakes has grown into a broader mandate: to make communities more resilient by revitalizing local economies while preserving natural resources. President Joe Biden has adopted the phrase, first as a campaign slogan and later as a name for his sweeping economic and infrastructure agenda.

But building back “better” feels like a vague and woefully inadequate directive. Communities are still confronting the COVID-19 health crisis while also wrestling with an uneven economic resurgence, racial and gender inequities, and the alarming rate of global warming that has led to one weather-related disaster after another. So we asked the Fast Company Impact Council—an invitation-only group of forward-thinking corporate and nonprofit leaders, CEOs, innovators, and founders—to help provide a clearer road map for recovery. In a series of conversations, they highlighted achievable changes that could enable institutions and society to emerge from the pandemic as more sustainable, more adaptable, and more inclusive. (Excerpts and additional insights can be found on fastcompany.com.)

Corporations and fast-growth companies are well positioned to lead the charge. They’ve moved from pledging to address racism and sexism in their own ranks—which they’ll admit is still a work

Jennifer Johnson
President and CEO,
Franklin Templeton

“I firmly believe that the inclusion of colleagues with diverse backgrounds, perspectives, and identities leads to better decision-making and problem-solving across our business.”

Guru Gowrappan
Former CEO, Yahoo
and Verizon Media;
senior adviser,
Apollo and Yahoo

“Destigmatizing mental health has been, and will remain, core to our work and my personal mission as CEO.”

Dana Settle
Cofounder and
partner, Greycroft

“The more that new brands do in terms of sustainability and inclusion, the more [big brands] will have to come along.”

Cristiano Amon
CEO, Qualcomm

“Lack of reliable access to broadband meant 12 million American kids could not participate in remote learning. America needs [policies] that are technology neutral and support both fiber and mobile broadband.”

Kathryn Guarini
CIO, IBM

“We need to embrace a new model of collaboration, built on empathy, shared experiences, and an understanding that we are more than just our day jobs.”

in progress—to using corporate power and scale to close opportunity gaps that only widened during the pandemic. “Building, fostering, and advancing a pipeline of diverse talent and teams is key to an equitable recovery,” says Kathryn Guarini, chief information officer at IBM, which is partnering with historically Black colleges and universities and nonprofits to offer skills training and jobs. Jennifer Johnson, CEO of asset manager Franklin Templeton, says that the company can support, through its mutual funds and other instruments, investments for a new generation of companies working to increase “the attraction, recruitment, and development of underrepresented communities.”

Newer companies say that they can address social ills in a long-term way by building sustainability and trust into their products from the outset. Sridhar Ramaswamy, cofounder and CEO of Neeva, is developing an ad-free private search engine—in contrast with big tech companies that monetize users’ data. Stuart Landesberg, cofounder and CEO of natural goods startup Grove Collaborative, is trying to eliminate single-use plastic packaging, which harms the environment and wildlife. As Gregg Renfrew, founder and CEO of clean beauty brand Beautycounter notes, “Today you have companies that, in their DNA, are trying to solve problems in the world—the business itself is an engine for change.”

Building back with impact will also force rivals to work together, says Patrick Criteser, president and CEO of Tillamook County Creamery Association, a farmer-owned cooperative that markets cheeses and other dairy products. “Making needed progress in sustainable supply chains and food waste is going to require partnership and collaboration among historical competitors,” he says. Impact Council members, perhaps appreciative of the way the Federal Reserve stepped in to shore up business lending and other markets during the pandemic, are actually calling for more government intervention in areas such as education and childcare, and some are seeking additional opportunities to partner with government.

It may seem counterintuitive that businesses would want to partner with lawmakers and regulators in order to build back with impact, but Brad Lukanic, CEO of architecture and engineering firm CannonDesign, says we should let history be our guide. “The 1930s Works Progress Administration focused on federally driven public projects, with many of their aspects enduring to this day. [The more recent] vaccine deployment highlights positive outcomes when industry and government work together for a singular purpose,” he says. “As we think about how infrastructure is being defined today, we should not lose sight of past successes or the opportunities for solving even greater challenges in the years ahead.”

■

Gail Becker
Founder and CEO,
Caulipower

“The number of people who experience food insecurity in the U.S. is around 30 million. The number of people we can feed with food waste is, you guessed it, about 30 million. It’s not hard to figure out what needs to be done.”

■

Niren Chaudhary
CEO, Panera Bread

“[We need] decisive action and bold innovation to address the humanitarian crises of discrimination and the climate emergency.”

■

Jerilan Greene
Global chief communications and public affairs officer, Yum Brands

“Businesses, governments, and institutions must fully participate together to create the kind of resilient economy, planet, and society that can positively serve . . . the next generation.”

■

Kara Medoff Barnett
Former executive director, ABT; head of social impact marketing and strategy, First Republic Bank

“[We are] letting go of perfection while holding onto the pursuit of excellence. Audiences are interested in the humanity, not airbrushed perfection.”

■

Brad Lukanic
CEO, CannonDesign

“Training and investment in our people are key to being at the forefront of creative solutions for tomorrow.”

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LaVerne Council
CEO, Emerald One

Frederic Court
Managing partner, Felix Capital

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Chairman, president, and CEO, MassMutual

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President and CEO, Tillamook County Creamery Association

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President and CEO, Dematic

Jerri DeVard
Founder, Black Executive CMO Alliance

Kevin Dexter
President and COO, Fisher & Paykel Appliances

Richard Dickson
President and COO, Mattel

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Laura Ipse
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Leena Jain
CMO, Coravin

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SVP, corporate strategy and investor relations, Axon

Josh James
Founder and CEO, Domo

Jeremy Jauncey
Founder and CEO, Beautiful Destinations

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Founding executive director, Elevate Prize Foundation

Natasha Jen
Partner, Pentagram Design

Jennifer Johnson
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Founder and CEO, Masimo

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CEO, Visible

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Founder and CEO, Eight

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Financial adviser, UBS Financial Services

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President and COO, Chobani

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CEO, DIAL Global

Susan McPherson
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CEO, Illumination Entertainment

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Douglas Merritt
President and CEO, Splunk

Jonathan Mildenhall
Chair, TwentyFirstCenturyBrand; CMO, Dave

Andrew Morse
EVP and chief digital officer, CNN Worldwide

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CEO, Workhuman

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Global director of new ventures, Reckitt Benckiser

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McG Nichol
Founder, Wonderland Sound and Vision

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Chief content and advertising business officer, Spotify

P–S

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CEO, Will Packer Productions and Will Packer Media

Deidre Paknad
Cofounder and CEO, WorkBoard

Ryan Pandya
Cofounder and CEO, Perfect Day

Kristin Peck
CEO, Zoetis

Steven Wolfe Pereira
Cofounder and CEO, Encantos

Christin Powell
CEO, Kinship

Gigi Pritzker
CEO, Madison Wells

Tony Prophet
Chief equality and recruiting officer, Salesforce

Matthew Putman
Cofounder and CEO, Nanotronics

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Cofounder and executive chairman, BlueJeans by Verizon

Sridhar Ramaswamy
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Founder and CEO, Beautycounter

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Shamina Singh
President, Mastercard Center for Inclusive Growth, and EVP, sustainability, Mastercard

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Frank Young
President, vertical market software solutions, Global Payments

Shelley Zalis
CEO, The Female Quotient

David Zasada
VP, education and corporate responsibility, Intuit

Michelle Zatlyn
Cofounder, president, and COO, Cloudflare

BRANDS

ATHLETIC BREWING CO.
RUN WILD
SPALDING
VANS "OFF THE WALL"
YETI
FAMOUS Louisiana CHICKEN
butter & bread
POPEYES

T H

ILLUSTRATIONS BY FOREAL

OUR INAUGURAL LIST OF THE MARKS THAT MADE A MARK IN 2021

PAGE 75

A T

YETI
GT's
SYNERGY
raw kombucha
LEMONADE
ORGANIC &
UNPASTEURIZED

MATTER

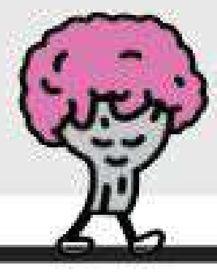
Patagonia Provisions and McDonald's could not be more different as companies and brands. Yet in 2021 both have had an undeniable impact on business and culture, far beyond the products they sell.

When Provisions, the iconic outdoor apparel company's food spin-off, launched Long Root Pale Ale beer, in 2016, it wasn't trying to create the next Budweiser. The brew was merely the best way to devote more agricultural acreage to a perennial wheatgrass called Kernza, a regenerative crop that helps build soil health and sequester more carbon. The beer amplified Patagonia's mission to fight the climate catastrophe and make it easier for others to join them.

COVID-19 led to greater food insecurity worldwide, and in response, more major corporations accelerated climate initiatives, particularly regenerative farming techniques, to fortify fragile food systems. In May 2020, Budweiser reported better-than-expected success in its initial efforts to reduce water usage as well as emissions in its rice production by using regenerative techniques, expanding its efforts to 2.7 million bushels. And in September 2020, the Nature Conservancy corralled Target, Cargill, and, yes, McDonald's, to join a five-year program to improve soil quality in Nebraska beef country. As Provisions director Birgit Cameron told me shortly after its Kernza initiative began, "If we can illustrate a path for the bigger companies to take, then we've won."

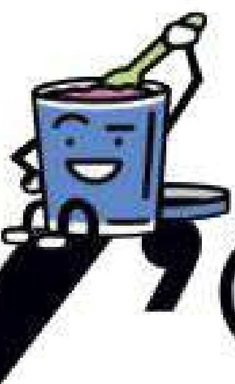
Despite its global ubiquity, McDonald's has rarely tapped the full cultural potential of its iconic status. Last year, though, the fast-food chain's Famous Orders meal partnerships with such global music superstars as Travis Scott and BTS began changing that—creating a playbook for social media marketing, merchandise, and new music to push customers to the drive-through (where they can make TikToks of themselves ordering Famous Meals). "This has shown us this rabid fandom that exists if we can find the right ways to unlock it," says Morgan Flatley, whom McDonald's promoted to global CMO in August.

Whether it's leading on the environment or pop culture, engaging B2B customers or responding meaningfully to current events, a brand's ability to forge an emotional connection with consumers is critical in establishing a long-term relationship, enthusiastic loyalty, and advocacy. In our first-ever compendium of Brands That Matter, we recognize nearly 100 companies and nonprofits that give people compelling reasons to care about them—and offer inspiration for others to buy in. *—Jeff Beer*



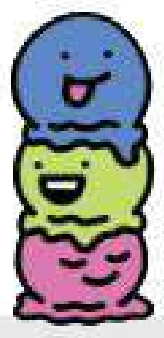
#TEAMTREES

A growth story: To celebrate hitting 20 million subscribers, YouTube star MrBeast accepted a fan's challenge to plant 20 million trees.



BEN & JERRY'S

The iconic ice cream maker has fought for what's right for four decades and isn't slowing down.



Illustrations: Sam Island; Goran Factory

COST TO PLANT ONE TREE

$1

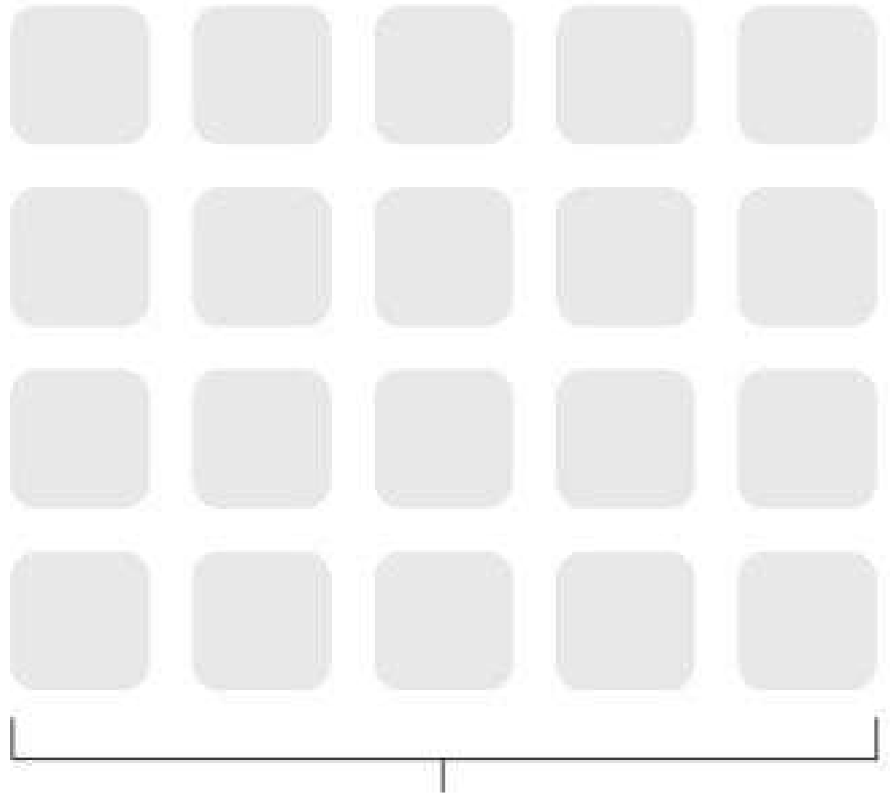
DAYS IT TOOK TO HIT PLEDGE GOAL

56

TREES PLEDGED AS OF SEPTEMBER 10, 2021

23,216,028

NUMBER OF COUNTRIES DONORS HAIL FROM



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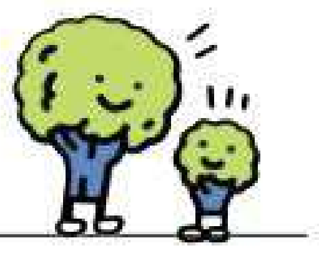
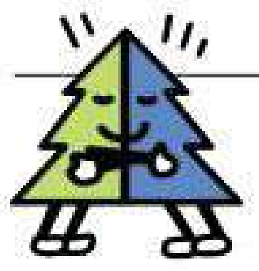
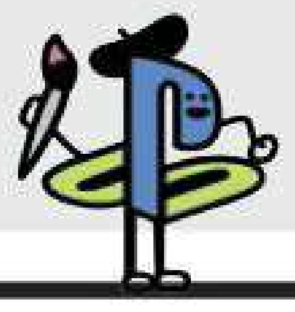




FOUR OF THE TOP TREE HUGGERS

	WHO	TREES PLANTED
	Tobi Lütke, CEO, Shopify	1,000,001
	Elon Musk, CEO, Tesla and SpaceX	1,000,000
	Jack Dorsey, CEO, Square and Twitter	350,000
	Susan Wojcicki, CEO, YouTube	200,000



PLAYSTATION

The console continues to advance the art of gaming, to the point of trumping quotidian human needs.

TOP 2020 GOOGLE "WHAT TO BUY" SEARCHES

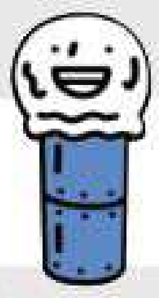
3	Face Masks
2	Toilet Paper
1	PS5

Sony's PlayStation 5, which debuted in November 2020, sold 10 million units worldwide by July 2021, a faster pace than its four predecessors, despite constrained supply.

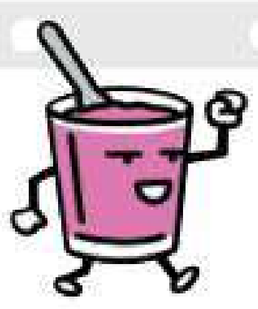
1984
When rival Häagen-Dazs (then a Pillsbury brand) pressured Boston retailers not to sell Ben & Jerry's pints, the upstart creamery won by pleading for fairness in a buzzy ad asking "What's the Doughboy afraid of?"

1985
Established the Ben & Jerry's Foundation, donating 7.5% of pretax profits to fund community projects. The company also gave approximately $150,000 annually in product to charitable and local organizations.

1989
The company rejected recombinant bovine growth hormone because of concerns about its health effects. It then fought Monsanto (maker of rBGH) to be able to promote its ice cream as rBGH-free.



2005
When President Bush proposed drilling for oil in Alaska's wildlife refuge, Ben & Jerry's made the world's largest Baked Alaska and delivered it to D.C. The stunt earned 30M media impressions and helped foil the plan.



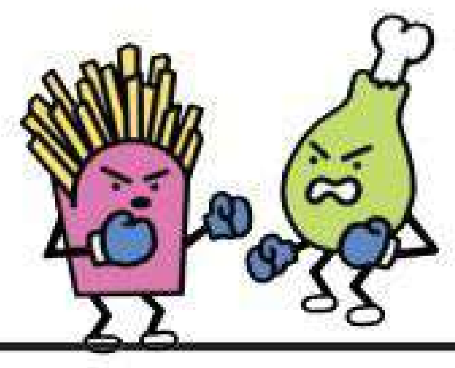
2017
Amid reports of brutal treatment of incarcerated citizens, the brand forcefully stated, "Slavery never really ended," and presciently focused its social-justice efforts on advocating for criminal justice reforms.

2021
After Israel bombed Gaza, Ben & Jerry's pledged not to sell ice cream in occupied Palestine. Even a Pillsbury heir wrote an op-ed encouraging his namesake's owner, General Mills, to do the same as its freezer-section rival.

Courtesy of Shopify (Lütke); Hannibal Hanschke-Pool/Getty Images (Musk); Joe Raedle/Getty Images (Dorsey); Taylor Hill/FilmMagic for YouTube/Getty Images (Wojcicki)

MCDONALD'S VS. POPEYES

These fast-feeders are setting the product and marketing agenda for the entire $200 billion U.S. sector—and influencing pop culture as they do it.



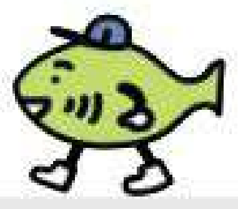
	MCDONALD'S	POPEYES
RESTAURANTS	36,000+ in 120 countries	3,562 in 37 countries
FIRST-HALF 2021 SALES	**$11B**	**$291M**
SOCIAL MEDIA FOLLOWING	4.2M 4.1M 1.4M	244.9K 428K 22K
MOST POTENT PLATFORM	Fan-made TikToks of ordering Famous meals via drive-through and unboxing them	Sassy Twitter voice
LIFESTYLE BRAND STATUS	Seasonal drops and collabs: Summer 2021 featured McDonaldland character Funko Pop collectibles and a sesame seed bucket hat.	It will be hard to top Christmas 2020's "Beignet Camo" hoodie, which hid the powdered sugar from its chocolate beignets.
LOST CRISPY CHICKEN SANDWICH HISTORY	The McChicken debuted in 1980, but flopped. McNuggets (1983) were a hit, but McD's has tried new takes on the fried-chicken sandwich since 1988.	Offered a fried-chicken Po Boy—tenders on a long roll—starting in 2003, but its 2019 Chick-fil-A rival was Popeyes first boneless breast on a bun.
CURRENT STANDING IN THE CHICKEN WARS	The Crispy Chicken Sandwich rolled out in February, in the wake of the Popeyes hit—impressively selling an average of 262 a day per location, according to analysts.	Nuggets dropped in July. The ripple effect of the sandwich boom that Popeyes kicked off is reportedly upending chicken breeding.

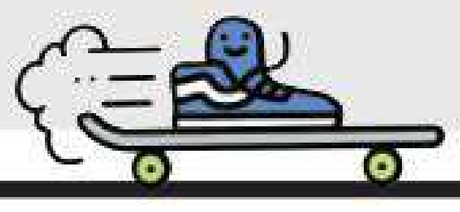
PATAGONIA PROVISIONS

It's led by example to popularize regenerative agriculture. Now Patagonia's food-brand spin-off is doing the same for seafood sourcing.

PATAGONIA PROVISIONS' GUIDE TO TINNED FISH

1. Pick a smaller fish species, like mackerel, to take pressure off a larger, less abundant one, such as salmon.
2. Partner with fishermen who belong to traditional guilds, which share profits and guarantee worker safety.
3. Ensure fishermen use hook and line (red yarn, natch) so there's no need for live bait and little or no bycatch.
4. Process and can the fish at a B Corp–certified family business in northern Spain that employs mainly women.



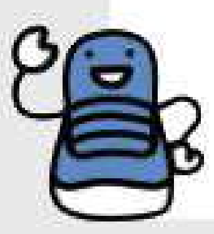


VANS

Fans of the iconic shoe have always kick-flipped boredom into creativity.

COMPANY-SPONSORED CONTEST
Make something out of a Vans shoebox.

COMMUNITY RESPONSE
Turntable...guitar...biplane...children's bicycle...film camera...boom box...camper van...working desk lamp...Pomeranian doghouse...space helmet...skate park...



Illustrations: Sam Island; Goran Factory

300

The indie recording label leverages its stars to inspire millions of creators on TikTok. Here's how three Megan Thee Stallion tracks rippled across the platform.

ENTERTAINMENT

Illustration: Foreal

"Savage"

Soundtrack to 20.3M videos

1ST THREE VIDEOS SERVED:

1. Queen Keke new dance alert: **4.3M likes**
2. O.moji gang reunited jump: **351K likes**
3. Charli D'Amelio-Madi Monroe dance: **8.2M likes**

"Thot Shit"

Soundtrack to 982,000 videos

1ST THREE VIDEOS SERVED:

1. Scrub Daddy cleaning: **501K likes**
2. Talking makeup with girls/gaming and being goofy with the boyz: **4.2M likes**
3. Filling a drawer with cash: **11.8M likes**

"Cognac Queen"

Soundtrack to 1.8M videos

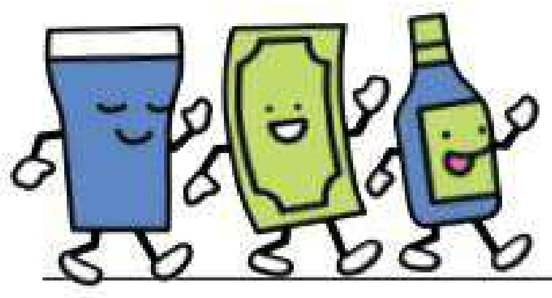
1ST THREE VIDEOS SERVED:

1. Black girl silk press hairstyle: **576K likes**
2. When people tell me I'm lucky to be dating my gf: **2.2M likes**
3. First week of school fashion show: **2M likes**

ATHLETIC BREWING

A nonalcoholic beer so good that it can inspire a drinker to become an investor

> Athletic Brewing is a company that really mirrors the things that matter to me right now. I don't drink as much as I used to, and I care more about wellness and my own well-being than ever before, especially since becoming a dad. Athletic is committed to wellness but understands that there's more than one way to get there. Initiatives like its Two for the Trails [where it donates 2% of revenues to hiking-trail maintenance] show exactly this.



—David Chang, chef, restaurateur, TV producer, investor

TRACKSMITH

The apparel brand is the pacesetter in supporting a healthier approach to running—and reinventing the sponsor-athlete relationship.

Nick Willis

› RECORDS 19 consecutive years running a sub-4:00 mile; five-time Olympian

› CURRENT TITLE Athlete experience manager, Tracksmith

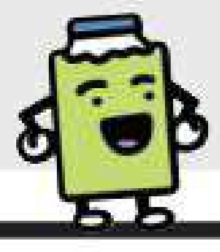
› GOAL Untether athletic sponsorship from a single-minded focus on performance—and build the sport in the process

Mary Cain

› RECORDS World under-20 indoor 1,000 meter; American under-20 two-mile

› CURRENT TITLE Community manager, Tracksmith; CEO, Atalanta, a nonprofit running team for girls

› GOAL Build a cadre of runners in New York and virtually, particularly in underserved communities



GT'S LIVING FOODS

Science is catching up with the company that has mainstreamed kombucha, underscoring the benefits of fermented foods.

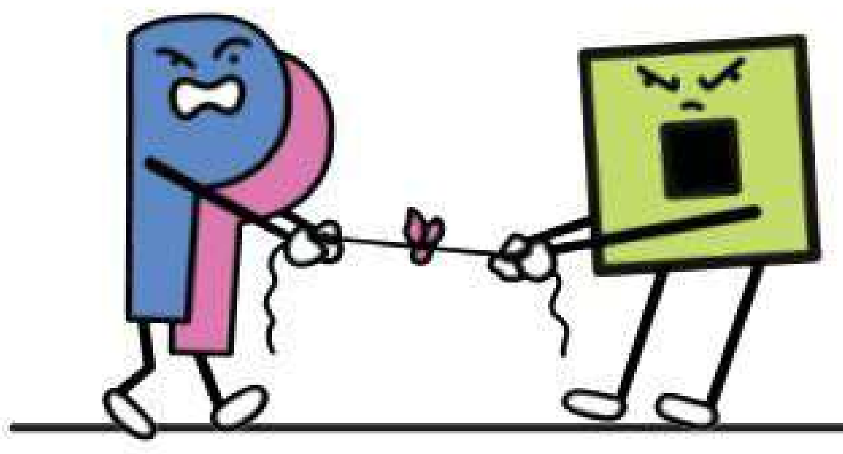
> "Fermented foods may be valuable in countering the decreased microbiome diversity and increased inflammation pervasive in industrialized society."

—"Gut-microbiota-targeted diets modulate human immune status," *Cell*, August 2021

Courtesy of Tracksmith (Willis, Cain)

PAYPAL VS. SQUARE

Both of these digital financial service giants were there for their customers during the pandemic—adapting to a collective desire for a more equitable world, albeit a contactless one.



	PAYPAL	SQUARE
FIRST-HALF 2021 REVENUE	**$12.3B**	**$9.7B**
POWER FLEX	Acquired Happy Returns—the e-commerce take-back service—in May 2021 to extend its real-world presence	Officially became a bank in March 2021 to offer more business loans and create new financial services
SUPERFAN	**Taylor Swift** She paid fans' bills via PayPal early in the pandemic. 	**Cathie Wood** As of August 2021, the CEO of Ark Invest holds more than $1 billion in Square stock across multiple funds.
ALUMNI	Former employees went on to run or cofound LinkedIn, Tesla, SpaceX, and YouTube, among others.	Former employees went on to run or co-found Opendoor, DoorDash, Nextdoor, and other companies without "door" in the name.
PERSON-TO-PERSON POWER	70 million+ Venmo users	36 million+ Cash App users
POP-CULTURE CRED	"Venmo" name-checked in 308 song lyrics; PayPal chalks up 1,122 references	"Cash App" dropped in 10 lyrics
CRYPTO CURIOUS	When PayPal U.K. authorized the ability to buy, hold, and sell bitcoin, in August, the currency cracked $50,000.	Introduced bitcoin buying on Cash App in January 2018; Square's bitcoin revenue for the first half of 2021 was $6.2 billion.

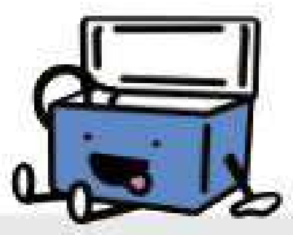
Illustrations: Sam Island; Goran Factory

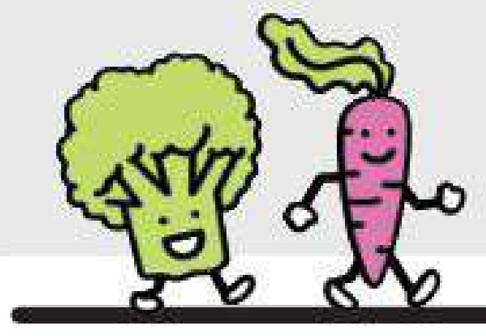
YETI

There's content marketing, and then there's what the cult cooler brand does to engage its audience and bring more people into its world.

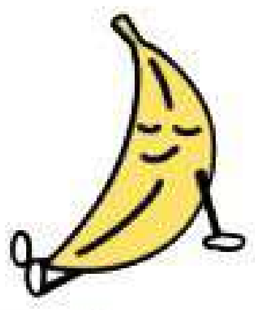
WELCOME TO THE YETIPLEX

- **"15 for 15"**
  To honor its 15th anniversary, Yeti curated what became a 65-film YouTube playlist.
- **"The Midnight Hour"**
  Countrified singer-songwriter Ryan Bingham jams with artists via Instagram.
- **Yeti+**
  The company website streams streams—live video of iconic waterways.





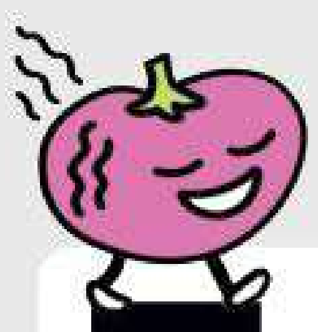
FEEDING AMERICA

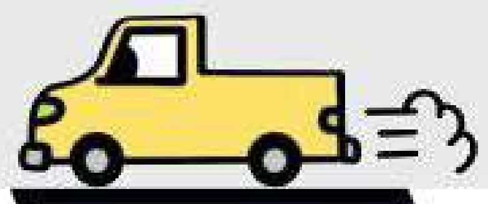


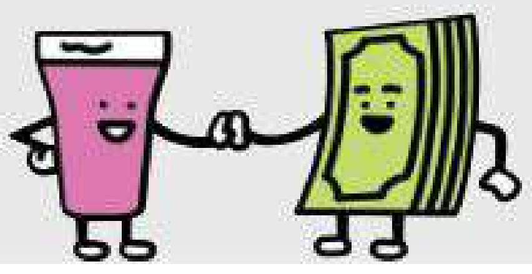
The network of 200 food banks and 60,000 food pantries and meal programs stepped up during an unprecedented time of need.

$6.1B

Meals provided in 2020, a 44% increase year over year







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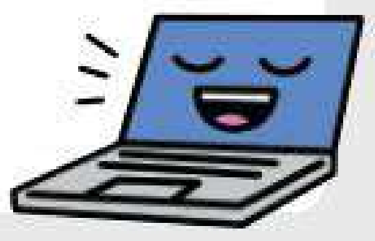
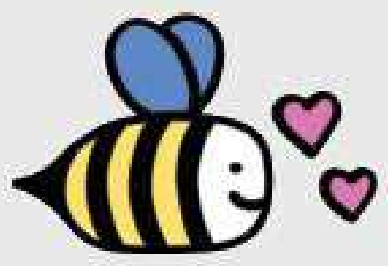
Honorees for *Fast Company*'s inaugural Brands That Matter



- 100 Thieves
- 300 Entertainment
- 3M
- AARP Staying Sharp
- Adobe
- Aerofarms
- Allbirds
- Asana
- Athletic Brewing Co.
- Beats by Dre
- Ben & Jerry's
- Beyond Meat
- Bumble
- Care.com
- Cariuma
- *Cosmopolitan* magazine
- C-SPAN
- Descomplica
- Disability: In
- Etsy
- Feeding America
- Firefox
- Ford Motor Co.
- General Motors
- GT's Living Foods
- HackerOne
- Hulu
- IBM
- Ikea
- Impossible Foods
- Indeed
- King Arthur Baking Co.
- LetsGetChecked
- Mailchimp
- MAM Baby
- MasterClass
- McDonald's
- Memorial Sloan Kettering Cancer Center
- Mudita
- National Basketball Association
- Nike
- No Kid Hungry
- Old Navy
- Patagonia Provisions
- PayPal
- Perkins&Will
- Philips
- PlayStation
- Popeyes
- Primary
- Purdue University
- Research Square
- Rotten Tomatoes
- Sesame Workshop
- Shopify
- Slice
- Sonos
- Square
- Steady
- Sweetgreen
- #TeamTrees
- ThredUp
- Tracksmith
- Tupperware
- Ulta Beauty
- US Foods
- Vans
- Versed
- Vital Farms
- Warby Parker
- World Centric
- Xbox
- Yeti
- Yumi
- Zoom



CONSUMER

Beautycounter
McDonald's
Vans

UNITED STATES

Ntwrk
Provalus
Sweetgreen
US Foods

CURRENT EVENTS

Blavity
Intuit
Mount Sinai Health System
Philips
Shopify

1-99 EMPLOYEES

MEA
Mursion
Tracksmith
Yumi

ENTERPRISE

Asana
Qualtrics
Thrive Global
US Foods

100-999 EMPLOYEES

23andMe
ChowNow
Kate Farms
Yeti

INTERNATIONAL

Big Red Group
Descomplica
Intuition Robotics

1,000+ EMPLOYEES

General Motors
LinkedIn
Mastercard

NOT-FOR-PROFIT

Ad Council
American Indian College Fund
NYCNext
Sesame Workshop

Illustrations: Sam Island; Goran Factory

Make hybrid work

Envoy's workplace platform helps you manage hybrid scheduling, flex your space, welcome visitors, and ensure everyone is safe — all from a single dashboard.

Envoy

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Rework work

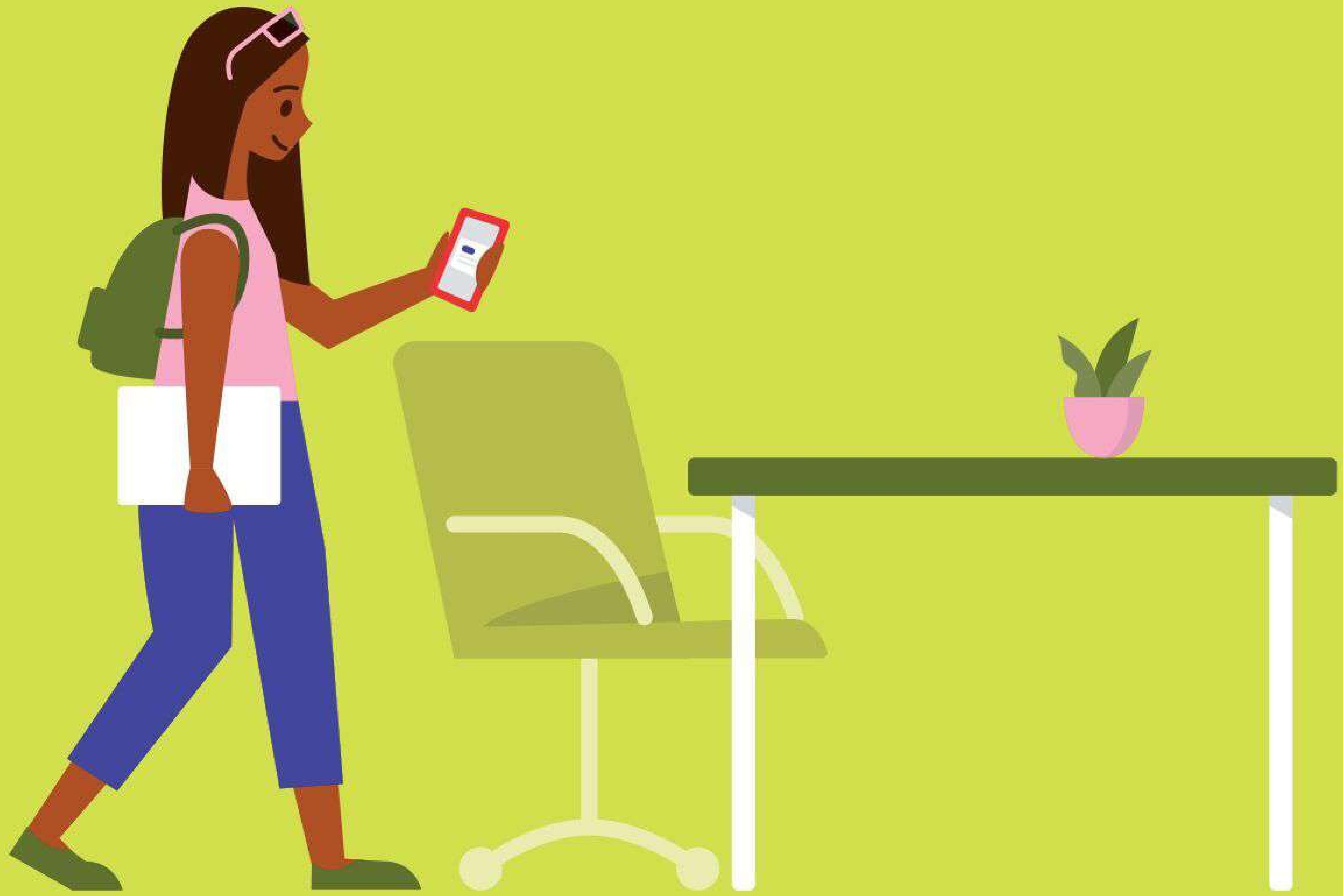
Envoy

Make hybrid work

In an Envoy workplace, you can take the hassle out of hybrid work so your employees are excited to come back to a better workplace.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Re-do desks



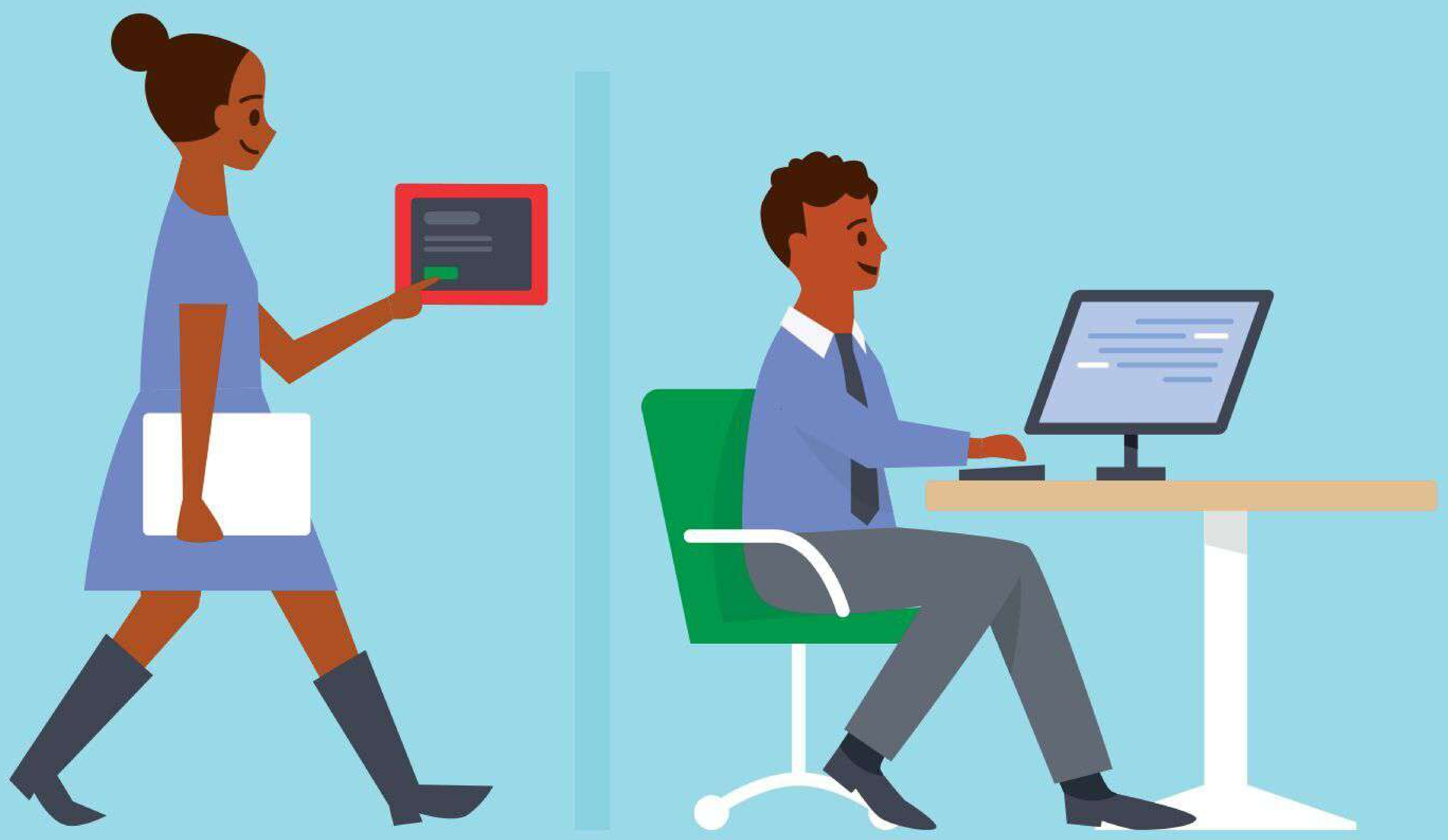
Envoy

Make hybrid work

In an Envoy workplace, you can sit where you like
and like where you sit.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Reserve rooms



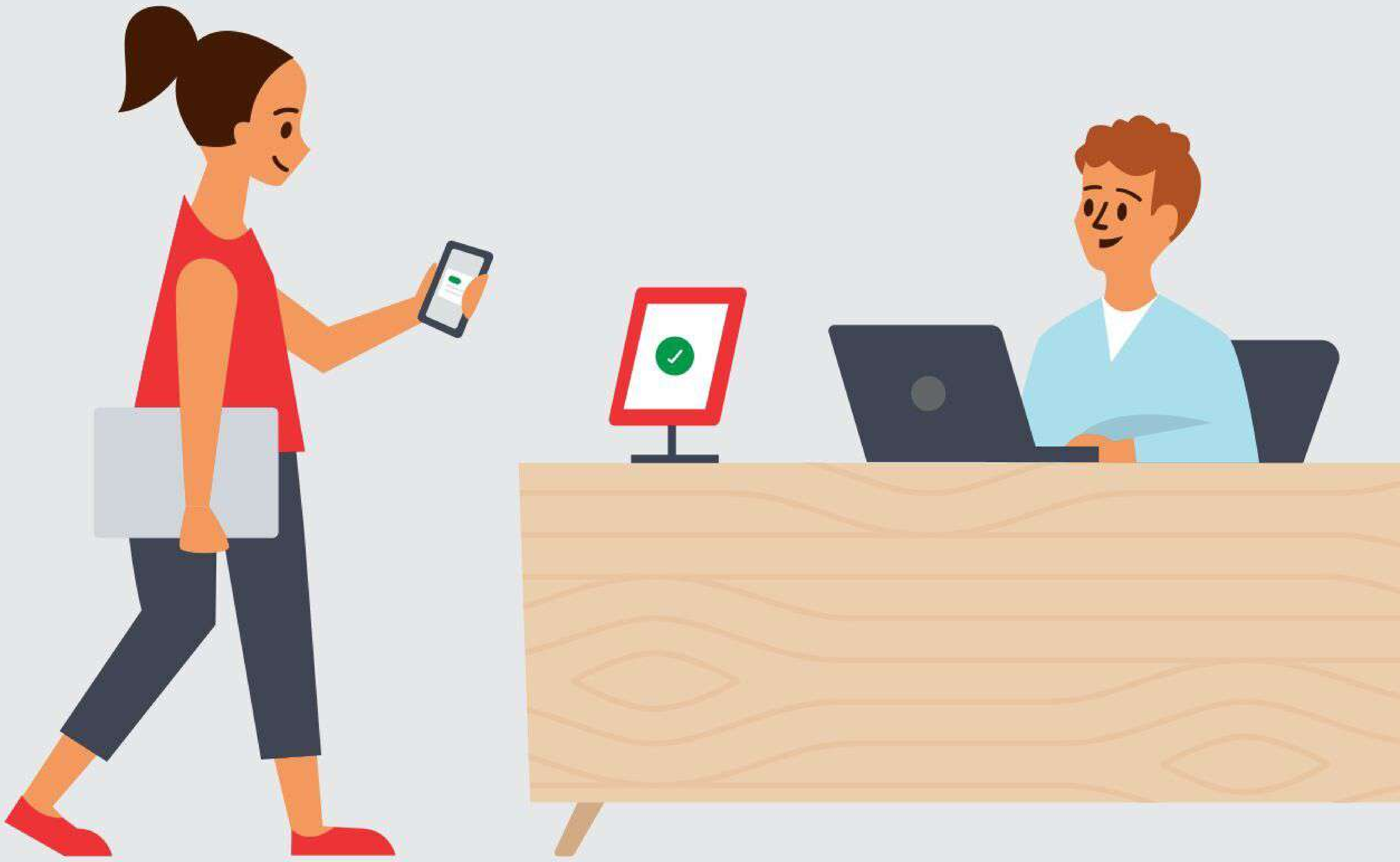
Envoy

Make hybrid work

In an Envoy workplace, there's no such thing as wasted space.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Revisit visits



Envoy

Make hybrid work

In an Envoy workplace, you not only know when visitors arrive — you know their temperature when they do.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Repackage deliveries

Envoy

Make hybrid work

In an Envoy workplace, every package finds its person and every person finds their package.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Reasssess safety

Envoy

Make hybrid work

In an Envoy workplace, employee happiness and safety go hand in hand.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

Create a workplace people love

Envoy

Make hybrid work

Welcome your people back to a workplace where they can do their best work. Welcome them back to better.

Desks | Rooms | Visitors | Deliveries | Mobile | Protect

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Andy Jassy

(Continued from page 44)

"shadow advisers" to Jeff Bezos, spending a year trailing the CEO at all of his meetings, and functioning as a chief of staff. The next year, he and Bezos developed the concept for what would become Amazon Web Services, which is now the revenue driver for the entire company. (See "I is for Income," page 50.) Jassy became CEO of AWS in 2016; he earned $36.6 million that year. During his final quarter before becoming CEO of Amazon, AWS had $4 billion in operating income, which was up 25% year over year.

Does he have a family? Jassy married Elana Caplan in 1997. A former apparel designer, she founded a textile, rug, and glassware marketplace called Eclectic Nomad in 2015. They have two children and live in the Capitol Hill neighborhood of Seattle.

When did he become CEO? July 5, 2021

What does he care about? The Rangers, the Mets, the Knicks, and the Giants. Also, it was Jassy's decision to boot Parler from AWS in January, soon after the Capitol invasion.

Does he have any side hustles? Jassy is a minority owner of the Seattle Kraken, an NHL team, and is the chairman of Rainier Prep, a charter middle school.

What does he like to eat? Per his Twitter bio, Buffalo wings.

Brands

(Continued from page 46)

to do, [that] I don't think anybody has any clue about. I'm not going to share them. But [these things] are 10 to 20 times more valuable than anything else." Pressed to offer more detail, he pauses. "I guess the only thing I would say is that Amazon is an SEO ecosystem that is intertwined in lots of unexpected ways. And if you understand where those paths lead, then you often will discover that there are things that you didn't realize were there."

While Thrasio navigates deeper into Amazon, its emerging rival, Perch, sees the platform as merely a springboard. Its approach, according to founder and CEO Chris Bell, is to let sellers do the early-stage experimenting, and then sweep up those who have carved out a profitable niche. From there, Perch plans to take its brands to other marketplaces, direct-to-consumer channels, and even brick-and-mortar stores. Through email marketing, the company is already attempting to build a loyal audience for some of its brands.

The goal, says Bell, is to have "a collection of consumer brands that are household names." A former Wayfair executive, he has no special affection for Amazon, and argues that most sellers don't either: "Amazon was just the easiest place for an entrepreneur to find a hole in the marketplace that they wanted to fill."

So far, Perch has acquired more than 80 brands. Of those, the company is already selling roughly two dozen via off-Amazon channels. The infant sleep-suit maker Baby Merlin, for example, which Perch acquired earlier this year, is now also available at Buy Buy Baby. Though it's hard to separate the boost e-commerce got from the pandemic from a specific company's performance, for Perch, the strategy seems to be working: On average, it's on track to grow its brands 75% year over year.

Another differentiating factor for Perch is that it might soon be able to fulfill its own orders. While working together at Wayfair, Bell and Perch COO Matt Montgomery created a supply chain capable of delivering furniture, even hot tubs, within two days, nationwide. With the pandemic stretching Amazon's fulfillment capacity to the limit, an aggregator with its own warehouses would be in an enviable position. In July, Perch spent $100 million to acquire a smaller conglomerate called Web Deals Direct, which operates more than 30 brands, including vacuum bags and vanity mirrors. Included in the sale: Web Deals Direct's 230,000-square-foot warehouse, near the port of Long Beach, California.

Aggregators would be wise to study up on the lessons learned by the direct-to-consumer darlings of the early 2010s. Warby Parker, Away, and others eventually realized the importance of diversifying their distribution channels; many now operate brick-and-mortar stores and partner with big-box retailers.

"The beauty of building a strong brand is that it creates its own momentum," says Marisa Mulvihill, a partner at brand consultancy Prophet. "The risk to this [aggregator] model is that the brands don't feel authentic; they feel like a faux brand from a huge conglomerate." But brand building is expensive. Even Allbirds and Warby Parker are still unprofitable.

If one thing is certain, it is that not all of these aggregators will survive. "We're already beginning to see some acquirers of Amazon businesses starting to struggle," says Ryan Gnesin, CEO of Elevate Brands, which owns some two dozen Amazon sellers. "We've had several companies offer us their portfolio."

Some aggregators will buy duds. Some will struggle to operate what they acquire. Some will lose share to price-competitive China-based brands, which comprise nearly half of the marketplace ecosystem (see "Masters of Scale," page 46). Caught in the heady rush of a chance to snag a piece of Amazon's growth, aggregators may forget that they are embarking on a novel, untested strategy.

But for the victors, the spoils will be substantial. By almost every measure, Thrasio, Perch, Elevate, and their peers are just getting started. "The aggregators still own less than 1% of products sold on Amazon," says Greg Mercer, CEO of Jungle Scout, an analytics tool for Amazon sellers.

Amazon, in other words, is just so big, they may never have to leave.

Gaming

(Continued from page 49)

diaries on YouTube, and launched a talent management agency for streamers, called RTS. *Fast Company* spoke to her about the business of streaming.

You were in high school when you made the decision to start streaming, in 2013. Why? I was in my senior year. I played a ton of *League of Legends*. There weren't many people in my high school that I could game with, so I mainly played with others online. [People] started sending me Twitch streams to watch. I figured that streaming on Twitch would be a way for me to make more friends to play games with. I fell in love with it.

When did you feel like, "Oh, wait, this might be my career!" You went to college to pursue a degree in chemical engineering, right? I remember the specific moment. It was during my second year [at McMaster University]. I was still streaming part time and going to school full time. But agencies and sponsors started really entering the streaming scene, and one month I made over $10,000 off sponsorships, subscriptions, and donations. And when I saw that monthly amount, it blew my mind.

What don't people understand about life as a streamer? Livestreaming is probably the most all-consuming job or profession you could have, because it's so clear that if you could stream 24 hours a day, it would probably be beneficial to you [financially]. But, obviously, that would not be a very healthy thing to do, which just leaves you in a situation where it can be difficult to create a very healthy work-life balance.

You've been outspoken about this balance on Twitch. Yeah. I'm happy to see that there is a lot more variety in the types of streams that are successful on Twitch. Certain channels stream maybe five times a month, but because, like, every single stream is a show, and it's really hyped, the viewership is great. Things like that are amazing. I had past managers telling me that I have to stream 8 or 10 hours every single day. And that just doesn't really work for me. I need time to reset in order to be a happy, functioning human being.

Income

(Continued from page 51)

rise is so closely associated with the way it let startups pay for computing resources only as needed that publisher and internet pioneer Tim O'Reilly calls it "the most democratizing thing to happen in technology since the PC." Seven years ago, when pharmaceutical and biotech company Moderna was ramping up, managing its own data center "would have cost us a magnitude more than what we were paying AWS," says chief digital officer Marcello Damiani. "And even if money wasn't the problem at the time, just to set up this infrastructure locally would have taken us a year or two." This early bet on AWS paid off in 2020, when its computing power and flexibility helped Moderna develop a COVID-19 vaccine in record time.

Today, millions of small- and medium-size customers still make up the majority of AWS's business. But financial services giants (Capital One), consumer packaged goods makers (Unilever), utilities (PG&E), and Amazon rivals (Netflix) have also concluded that AWS can tackle their IT needs better than they could on their own. Selipsky says that one of his key priorities is to "get better and better at providing great value to really big customers." Also on his mind is the challenge of getting the company to $100 billion in yearly revenue and beyond without overcomplicating things by adding too many services. The company currently offers more than 200 of them, targeting constituencies from government agencies to game developers.

There's little reason to think that AWS's success story is in danger of ending anytime soon. According to research firm Canalys, the company accounts for 31% of the market for cloud services, well ahead of second-place Microsoft Azure at 22%; Google Cloud is a distant third, with 8%. All three players have plenty of potential for additional growth, as companies migrate more of their processes to the cloud, says Baird Equity research managing director Colin Sebastian. "The pandemic was a wake-up call for many organizations that digital transformation is not just an opportunity but in most cases a necessity."

Some of AWS's most pressing concerns don't involve keeping ahead of the competition or even satisfying customer demands. Though AWS's profile is low compared to that of other Amazon properties, such as Prime Originals, Whole Foods, and Twitch, it has its share of controversies. In July, more than 500 employees supported a petition charging AWS with "an underlying culture of systemic discrimination, harassment, bullying, and bias against women and underrepresented groups. (Selipsky responded by saying that AWS had hired an outside firm to investigate.) And because AWS remains synonymous with the cloud computing field it invented, it's entangled in just as many aspects of modern life as Amazon's consumer-facing businesses.

Consider AI, a critical AWS offering but also the subject of heated debate, with its potential for bias, privacy invasion, and just plain error. In the wake of 2020's protests following the killing of George Floyd, the company stopped selling its facial recognition service to U.S. law enforcement agencies, a moratorium it extended just before Selipsky's appointment as CEO. Like other AI providers, the company seems to be bidding its time until legislation enforces some ground rules. "I absolutely do think that policymakers have a role," says Selipsky.

Then there's sustainability. In 2019, Greenpeace accused AWS of backing down from its goal of operating its data centers on 100% renewable energy. Now AWS says that it should get there by 2025—five years ahead of its original target. It's also setting benchmarks for companies in its supply chain, such as those that provide steel and concrete for AWS data centers. "Because of our scope and scale, we can go work with large manufacturers and put that requirement into our build processes," says Nat Sahlstrom, director of Amazon Energy. "And as a result, we're getting less carbon-intensive buildings."

Selipsky says that wrestling with these sorts of issues starts with the question, How do we embrace the responsibility and the opportunity that we have to be a local citizen in our communities, a citizen of our countries, and a global citizen? A few months into his new job, he doesn't claim to have all the answers. But given the pervasive role AWS plays in how business of all kinds gets done today, the impact could be profound—even if it's invisible to most of us.

Lina Khan

(Continued from page 52)

appointed by President Joe Biden as the new chair of the Federal Trade Commission, the agency in charge of enforcing U.S. antitrust laws. What now? Amazon continues to maintain that it hasn't run afoul of any existing laws—and has suggested that Khan needs to recuse herself from Amazon-related matters because of her work prior to becoming FTC chair—but antitrust experts expect that some kind of enforcement action against Amazon is nonetheless likely. What that will look like is unclear. The FTC could choose a narrow approach, as the attorney general of D.C. did with a lawsuit accusing Amazon of imposing overly restrictive contracts on third-party sellers (which has since been expanded to include wholesalers). Such a strategy might lack the dramatic reimagining of antitrust philosophy outlined in Khan's research, but it might also stand a better chance in court. Alternatively, the FTC could go big, aiming to "essentially break up Amazon along business lines," according to Stacy Mitchell, codirector of the Institute for Local Self-Reliance and a noted Amazon critic.

Or the laws themselves could be altered. Predatory pricing is notoriously difficult to prove in court, and Khan has made a case as to why the legal standard needs to change.

(She mentions, for instance, the infamous story of how Amazon lowered the price of diapers to squeeze the owner of Diapers.com, which it eventually acquired and shut down.) Some experts say any action by the FTC could nudge Congress toward passing meaningful reforms. Last year, a House subcommittee on which Khan served as counsel recommended that Congress consider legislation aimed at "structural separation and line of business restrictions" (i.e., breaking a company up) as a way to rein in Big Tech. Since Khan was appointed, the FTC has already presented data on Big Tech acquisitions that suggests it will be tougher on such deals. "It's totally conceivable that the FTC could bring a case that it knows it very well may lose, [but that will] light a fire under legislators to pass some of the legislation that's been proposed," says Benjamin Sirota, a former prosecutor with the Department of Justice's antitrust division. "Ultimately, that's probably the most feasible way to regulate a company like Amazon."

eXpectations

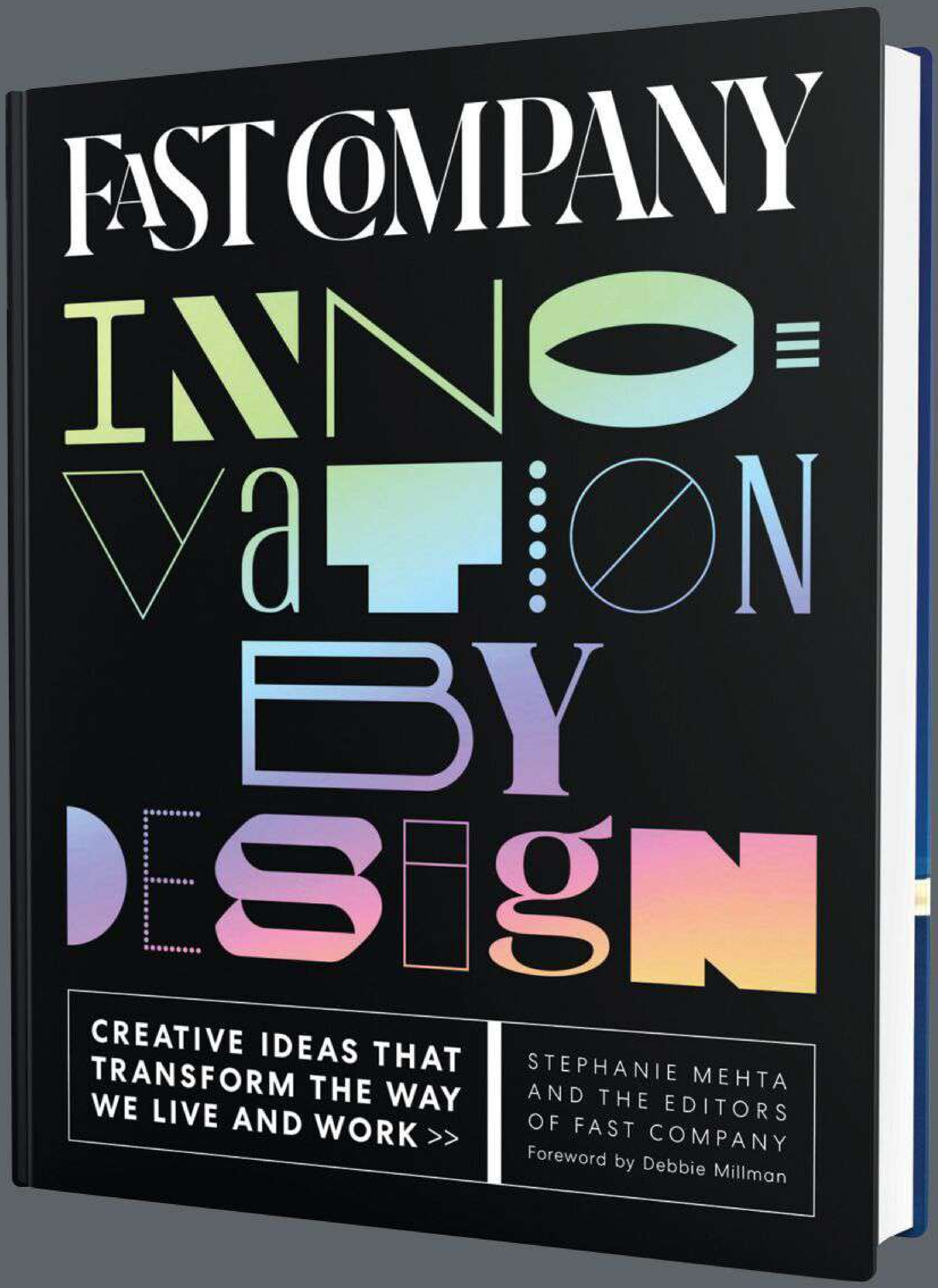
(Continued from page 58)

can solve and differentiate themselves from the competition—and license their technology to other retailers. (See "J is for Just Walk Out," page 51.) The mere whisper that Amazon is going to do something like checkout-free stores has had a huge impact over the past three years. Retailers have been taking it seriously and experimenting with their own [checkout technologies].

How can people expect to shop in the near future because of Amazon? Amazon has embedded itself in our lives and in our homes, unlike any other retailer before; Alexa seamlessly funnels purchases through to Amazon's platform. You don't need a store or screen to go shopping, because you can be in your kitchen, asking Alexa to add things to your list. In the future, consumers will be able to completely opt out of the transaction. We'll never have to think about buying bleach and toilet paper and toothpaste—all the non-emotive boring things that we need but don't really want to think about buying.

That feels a little creepy. I agree. But, getting in a stranger's car was creepy 10 years ago . . . and now it's just normal. *—Erin Schulte*

A DAZZLING CHRONICLE OF DESIGN-LED INNOVATIONS.


FAST COMPANY
INNOVATION BY DESIGN
CREATIVE IDEAS THAT TRANSFORM THE WAY WE LIVE AND WORK >>
STEPHANIE MEHTA AND THE EDITORS OF FAST COMPANY
Foreword by Debbie Millman

AVAILABLE NOW,
WHEREVER
BOOKS ARE SOLD.

ABRAMS

WICKED COW STUDIOS

The New Military

(Continued from page 67)

waves, icebergs, and 80 mph winds. “They need to put systems out in the field for four to six months,” says the sandy-haired Brit.

Steering through the DOD’s bureaucracy makes the high seas seem tame, and it may well be the single-largest impediment to the tech industry succeeding in transforming the defense industry. The barriers that tech startups face are structural, cultural, and all seemingly immutable. Looking around Saildrone’s headquarters—a huge former Naval Air station hangar in Alameda, California, fronted by a sprawling dock that leads directly to the waters of San Francisco Bay—it looks like a hardware startup. But each of these Saildrones of various sizes piled high, almost all of them the same bright safety orange, are a container for high-resolution optical cameras with machine-learning target detection as its devices patrol waterways to watch and listen in the right places.

“I look at major weapons systems and platforms as hardware enabled, yet software defined,” says Ellen Lord, who served as undersecretary of defense for acquisition and sustainment—the job DIU’s Brown had been nominated for—during the Trump administration. Lord, who had previously been CEO of the systems division of Textron, the $16 billion defense conglomerate, brought more of a tech-world perspective to the problems that have bedeviled Silicon Valley—namely, that for decades the DOD has bought software using the same two-years-in-advance schedule and funding mechanisms designed for hardware.

During Lord’s tenure, she enlisted the likes of Founders Fund partner Trae Stephens to study current methods of funding and acquiring different types of software, then offer a set of recommendations for improving those regulations. Congress has now given the DOD the ability through the National Defense Authorization Act to implement some of them. But that’s just the first step. “It’s an enormous amount of work to translate between statute and business practice,” says Lord, who is now a senior adviser at Chertoff Group, a security risk management firm, “and then another enormous step to train the contracting and program management workforce to understand what they are allowed to do.”

Even with these incremental improvements, the system remains tilted by some of capitalism’s worst habits. In the past two decades, according to a February report by Open Secrets, defense companies have directed $285 million in campaign contributions and $2.5 billion in lobbying spending to influence defense policy. They’ve hired more than 200 lobbyists who have worked in the bureaucracy that regulates the industry and decides its funding. “How do you wrestle [programs] away from the large defense contractors who just spend billions on lobbyists in D.C.?” Jenkins says.

Wolfe, the venture capitalist, has a possible answer, one befitting his “expect the worst” outlook. He says that his firm, Lux, “and a handful of other venture firms and tech companies are all pushing. It’s going to take time, and, ultimately, probably a shock from a competitor [China or Russia] that really breaks down those walls.”

> **“**
>
> **[WE’RE] USING CHINA AS THE BOGEYMAN, REPLACING THE SOVIET UNION. EVERYTHING REVOLVES AROUND THE DEFENSE OF TAIWAN.”**
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CHRIS MILLER, WHO SERVED AS ACTING secretary of defense for President Trump from November 2020 to January 2021, is not exactly a dove when it comes to China. But he believes that, post-Afghanistan, the establishment now needs a “great power competition” with China to justify the $700 billion–plus annual defense budget. “All they’re doing, again, is creating this narrative that somehow we’re at existential risk. No matter what happens, we’re going to be set with this huge, bloated military that’s focused on really exquisite, high-cost, very difficult to maintain, very technologically advanced weapons systems that are tied to a flawed war-fighting concept.”

Silicon Valley views China as its chief rival as well. One-fifth of the world’s trade—which is increasingly being ordered online and procured via tech companies digitizing supply-chain logistics—flows through the patch of Pacific Ocean between China’s southern coast, Vietnam, Malaysia, and the Philippines known as the South China Sea. Most of the world’s computer chips are produced in the region. One Taiwanese company in particular, TSMC, currently manufactures the vast majority of the advanced processors that control many aspects of Western life.

Although a pivot to China emerged as the focal point of America’s defense and economic priorities in the Obama era, concerns in the tech world ratcheted up in 2017, when the State Council of China’s New Generation Artificial Intelligence Development Plan (AIDP) laid out a strategy for achieving worldwide dominance in AI by 2030. “The world’s major developed countries are taking the development of AI as a major strategy to enhance national competitiveness and protect national security,” the report stated. AIDP calls on private companies such as Alibaba and Baidu to develop and apply AI to various social challenges—defense among them. At the time, China’s reported annual defense budget was $151.4 billion, up 7% from 2016, though it represented just a quarter of U.S. military spending that same year. (It grew to $209 billion in 2021.)

Silicon Valley is a little envious of China’s military-civil fusion (as the U.S. State Department officially characterizes it) and frustrated anew with the American status quo. “I don’t want their totalitarian system,” says Brown, “but no question they could move a lot faster with their chain of command than we can in our democratic one.”

Brown believes that China’s tech and economic ambitions are fueling this competition and inspiring more tech people to work with the DOD. “What [China] wants to do is supplant all of the technology leaders in every category—AI, cyber, autonomous systems,” he says. “They’ve already done that on the small side with DJI [in drones]. They want Huawei, Baidu to be the technology names of the future—setting the standards, leading global market share.” That kind of shift could have deleterious consequences for tech companies long used to attracting the world’s best talent and commanding the highest valuations, and it could impact America’s ability to use its tech sector to project its power and values.

But it is not a fait accompli. Defense tech’s amplification of tensions could have negative consequences for U.S.-China relations. “The threat here is not of China ‘taking over the world,’ ” says Jessica J. Lee, a senior research fellow in the East Asia program at the Quincy Institute for Responsible Statecraft, a nonpartisan foreign-policy think tank backed in part by both Charles Koch and George Soros. "[It's] more of a worsening security dilemma leading to increasingly zero-sum, worst-case forms of competition that harm all countries and increase the chance of crises and conflict."

> **DURING THE COLD WAR, THE SECRETARY OF DEFENSE OFFICE WOULD CALL KELLY JOHNSON AT LOCKHEED SKUNK WORKS AND SAY, 'WE NEED TO BUILD STEALTH FIGHTERS.' JOHNSON WOULD SAY, 'WE KNOW HOW. GIVE ME $30 MILLION. WE'LL BUILD ONE THAT WILL FLY IN 18 MONTHS.' "**
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TRAE STEPHENS, THE FOUNDERS FUND partner who also cofounded Anduril, wistfully recalls the moment in 1955 when the nation's preeminent aircraft maker and the DOD could collaborate at the speed of sound. For Stephens, it's that spirit that needs to be rekindled. "That involved a level of trust and belief," he says. "It would not happen today."

If "the rules were gone and I could do anything I wanted," Stephens says, he'd stop flinging R&D pennies at thousands of startups. Instead, he'd "focus on funding a smaller amount of companies with significant financial commitments that are truly going to advance the mission of the war fighter."

He's not alone in thinking that the DOD's broad efforts are largely performative. "All the services are building out their little innovation labs, which is cute, and it works for a while, and it's necessary," says Miller, who was acting secretary of defense less than a year ago. "When they go up on the Hill, the acquisitions chiefs, the service secretaries, and service chiefs can talk about how innovative they're being. But when you follow the money, it's just not there." The current DOD effectively agrees. "You'll be delighted to know that one of the things we're looking at is all those quote-unquote innovation organizations that have sprung up everywhere," says Heidi Shyu, undersecretary of defense for research and engineering, who wants to understand precisely how much tech has transitioned into production.

Whether the DOD continues to pursue a broad investment strategy in startups or places a few big bets, a Silicon Valley–centric defense industry may well move faster than the handful of legacy contractors who dominate it today. The tech players backing this future know it may be a slow build, but just as COVID-19 accelerated telehealth and remote learning, boosting fortunes, so too could a shock like a military conflagration.

But that speed comes with costs. Like jobs. Software programs require fewer workers than building ships, for example. The engineers writing those algorithms are also likely to be concentrated in a few urban hubs and share a social class. "There's a handful of jobs being created, but they're going to upper-class, well-educated elites who have master's degrees or PhDs" in fields such as machine learning, says Yale historian Michael Brenes, whose 2020 book, *For Might and Right*, chronicles the way in which Cold War defense spending reshaped America.

If tech's urgency to scale its businesses at venture speed translates into rushing AI systems into the battle space, that could be disastrous. "We don't understand yet exactly when and why they fail," says Chris Meserole, director of research of the Artificial Intelligence and Emerging Technology Initiative at the Brookings Institution, the center-left think tank. "Until we do, it's going to be very hard to understand when and why we should use them."

Even if AI succeeds, there will be implications. Today's standard for the armed services is that in order for an autonomous weapon to be used predictably and ethically, a human decision-maker must always approve its actions. But as these systems become more advanced, the human factor could become the thing that impedes its performance. The temptation to remove this weakest link might be too great. If one side does it, the other side may be forced to follow suit. That same quandary might spread from one kind of weapons system to the next. What happens when no human operators are left?

Some in the tech community believe that using AI in warfare will produce a cleaner, more precise form of aggression that surgically strikes at enemies while limiting "collateral" damage to others. But a September report from Airwars, a U.K.-based nonprofit that monitors civil harm in conflict, presented a range of at least 22,679 and possibly as many as 48,308 civilian casualties from U.S. targeted air or drone strikes during the war on terror in Afghanistan, Iraq, Libya, Pakistan, Somalia, Syria, and Yemen. (This would not include the event in August, which killed 10 civilians, including 7 children, in Afghanistan.) Airwars admits that these numbers are conservative. "We are therefore looking at a fraction of the overall civilian harm in these countries," the organization states.

As a result, there's a growing movement to restrict the use of AI-powered weapons. The nonprofit Human Rights Watch cofounded the Campaign to Stop Killer Robots, a coalition of 180 like-minded groups in 65 countries calling for an international treaty to ban fully autonomous weapons. "The techno optimism that infuses Silicon Valley and of course the Department of Defense is just the way it's always been, unfortunately," says Mary Wareham, advocacy director of HRW's arms division. "We're sleepwalking into a really grim future if all we're going to talk about are the benefits of technology, the promises that it will bring, and not deal with the downsides, the dangers, and the people who are going to be threatened by such applications of tech."

Thirty-six countries have endorsed the goal of a treaty banning autonomous weapons, which has the support of UN Secretary-General António Guterres, who has called autonomous warfare "morally repugnant and politically unacceptable." China supports an international treaty ban, though it only wants to limit their use, not their creation in the first place. The United States has rejected any agreement on lethal autonomous weapons, calling it "premature."

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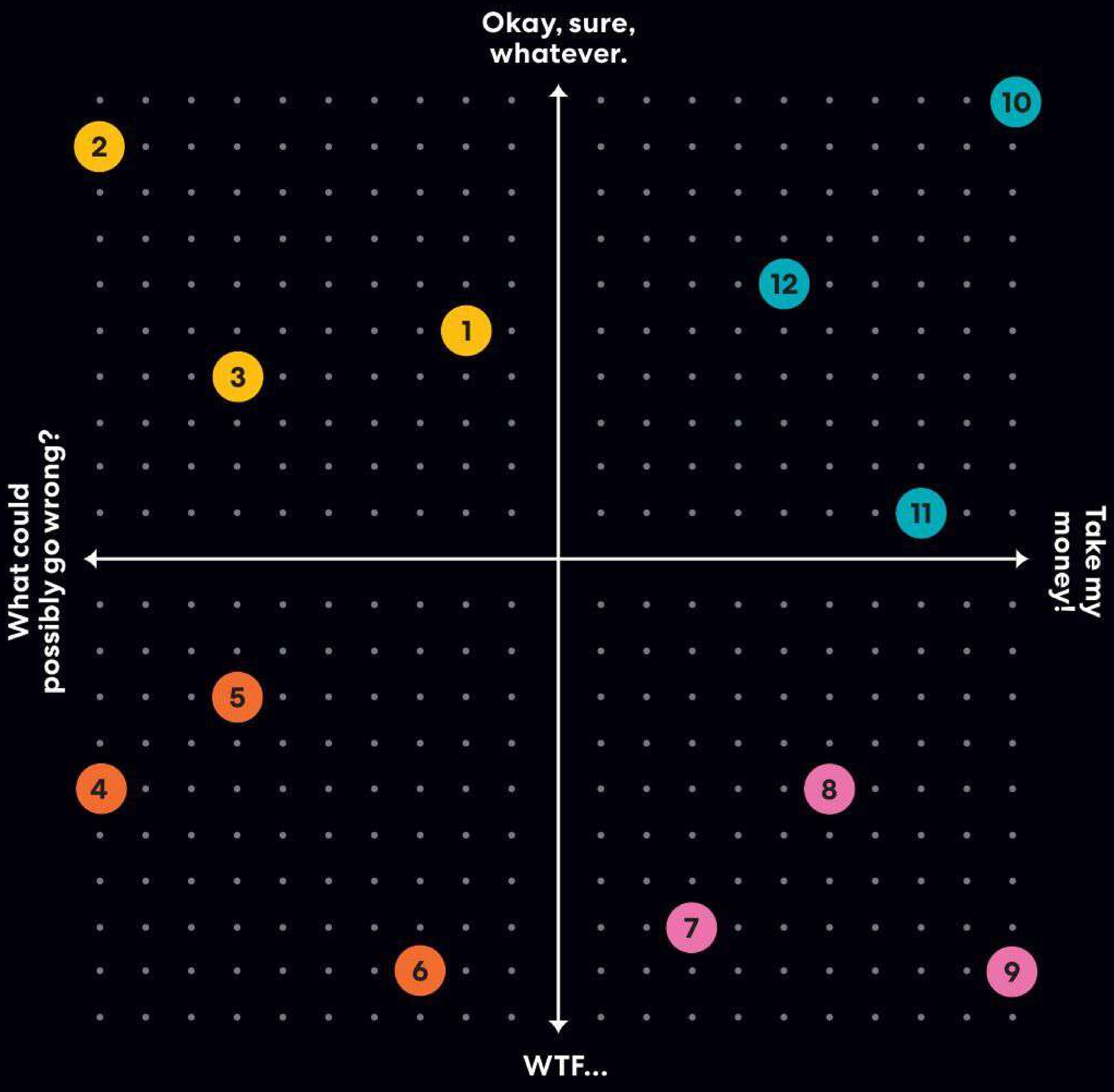
Illustrations by Dept. of Tears

Our Virtual Reality*

We dreamed of cures and social justice—and maybe a jet pack—and this is what we get?

BY JAY WOODRUFF AND CHELSEA SCHIFF



1. Billionaires in space

2. NFTs

3. Crypto mining

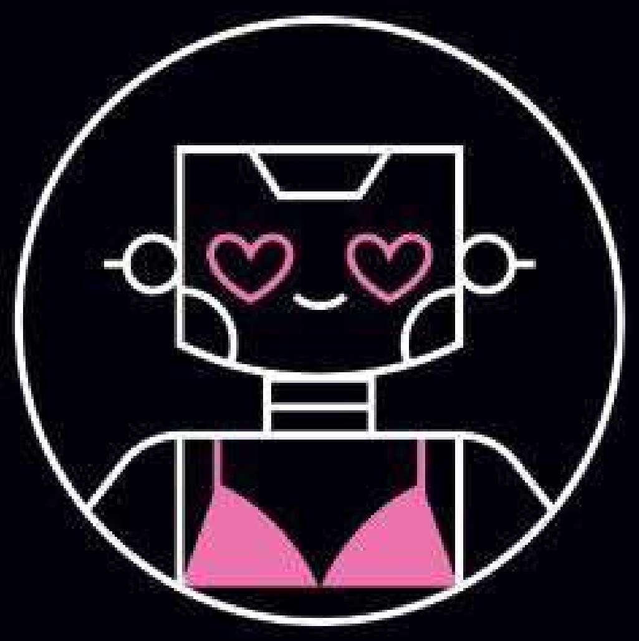
4. Anonymous founders

5. Your Hometown Deli

6. Sustainable desert utopias

7. Pilotless planes

8. 3D-printed steak



9. Sex robots

10. Jet packs

11. Age reversal

12. Blockchain

*Apologies to the Approval Matrix

WE'RE IN UNCHARTED TERRITORY

Nobody said it would be easy.

We live in a complex reality where the strength and fragility of our human systems are at odds with the delicate power of nature. Our planet is richly abundant, yet severely deprived. Our economies are innovative, yet inequitable. Our supply chains are more global than ever before, yet more exposed to disruption. Our cities are burgeoning, yet unsustainable. We must protect and enhance one without jeopardizing the other, but how do we navigate these increasingly complex challenges?

Maps and geography have always been how humans understand the broader context of our physical world. A map can be both expansive and granular and, today, a modern form of digital cartography and spatial data science is radically enhancing that understanding. These maps are helping us locate property and identify opportunities, visualize and find safety from an invisible global pandemic, and identify trends in hot spots and pinpoint hope spots. They're even helping us chart the previously inaccessible worlds of the ocean floor and the planet Mars.

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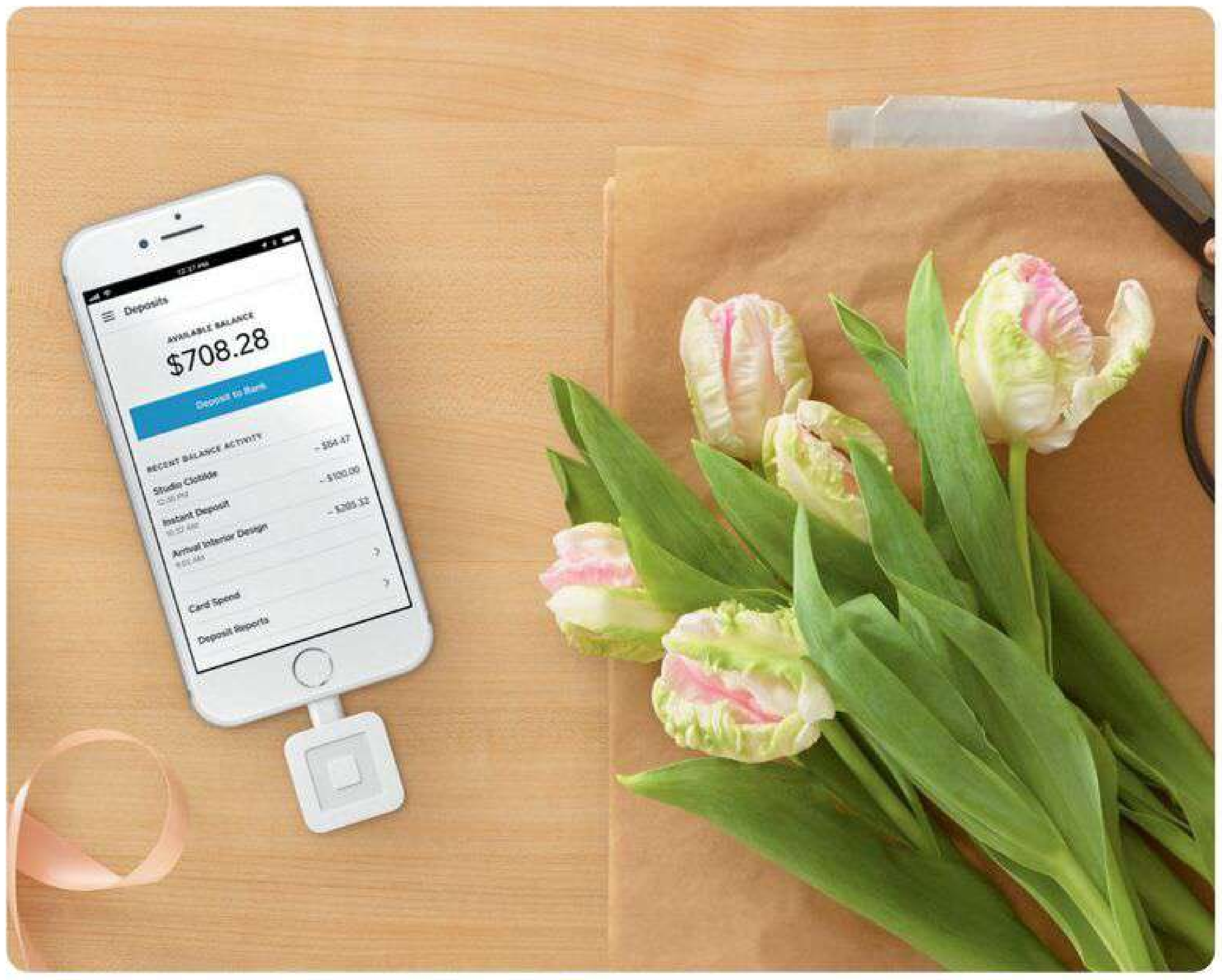

How it started.

How it's going.

When Square first started, it offered tools for small businesses to take payments everywhere. But large businesses need solutions, too. So Square built scalable tools for customer relationships, sales, security, and more — turning how it started into what large businesses need today.

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